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ABSTRACT

Intended for directors and staffs of federally funded projects, especially Teacher Corps activities, this book contains discussions of six educational concepts and processes which stem directly from the federal commitment to "demonstrate" that is made explicit in the Teacher Corps guidelines. The umbrella concept is identified as "demonstration," with the concepts of description, development, documentation, dissemination, and diffusion as components of the larger construct. The book is divided into five sections, with each section containing a preliminary article on the central topic as well as several case studies of exemplary programs which illustrate the different aspects of the demonstration projects. An extensive bibliography is appended to the report. (Author/LH)

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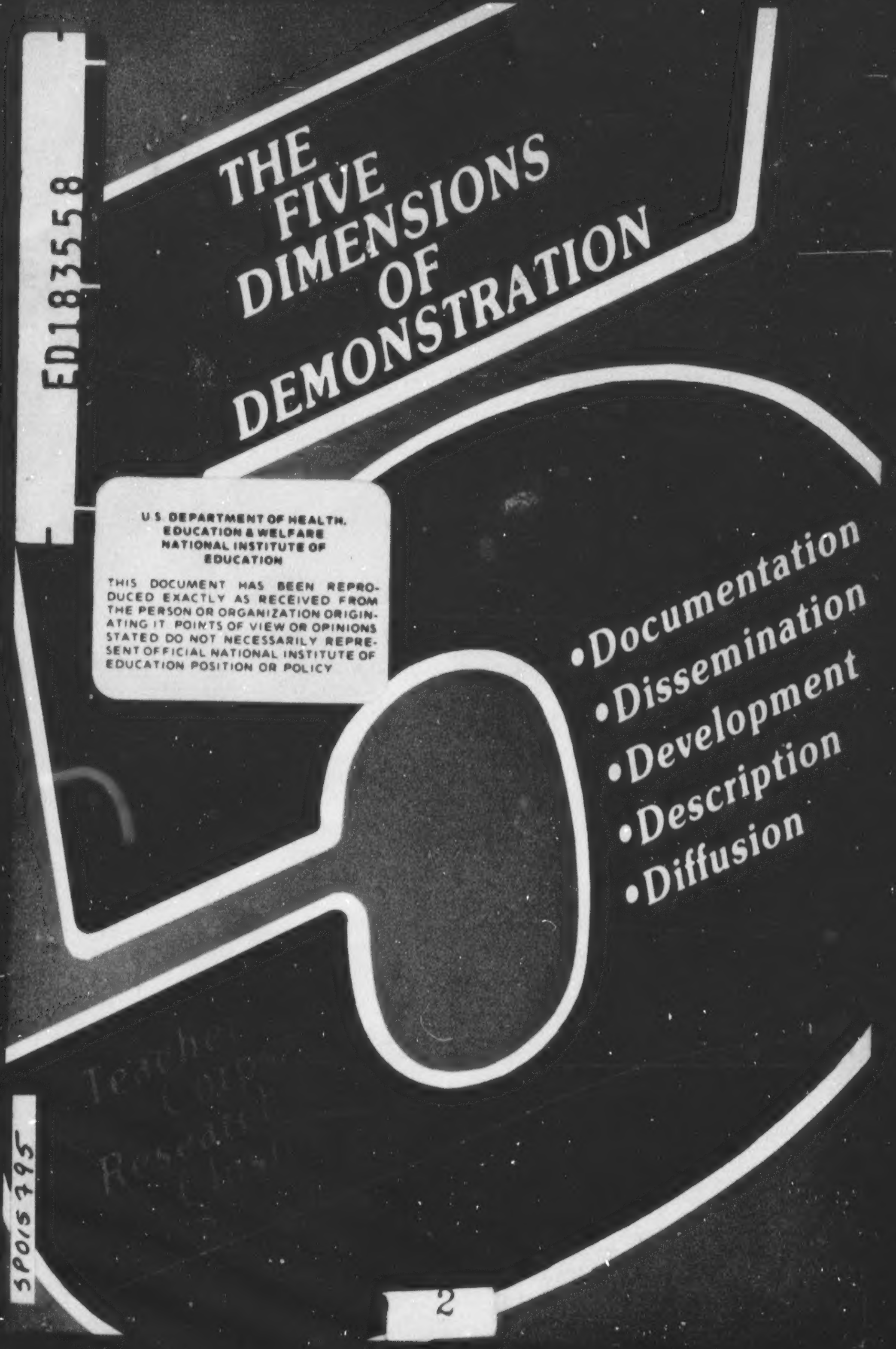
THE FIVE DIMENSIONS OF DEMONSTRATION



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FIVE DIMENSIONS OF DEMONSTRATION

The Teacher Corps
Research Adaptation Cluster

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MAR 19 1980

TABLE OF CONTENTS

Preface—Keith Acheson, Jim Steffensen i

1. Introduction—The editors 1
2. DESCRIPTION 7
3. "A Model for Assessing Educational Needs in a Rural School System" by Ronald B. Childress and James M. Applefield 11
4. "Student-initiated Activities to Increase Student Autonomy and Decrease Disruptive Behavior" by Jacqueline Lougheed 27
5. "The Integration of Preservice, Inservice, and Paraprofessional Teacher Training" by Lee T. Peterson and Howard W. Pullman 38
6. "The Application of Microteaching to a Teacher Corps Intern Training Program" by Samuel Morrow 46
7. DEVELOPMENT 52
8. "Children Learning by Teaching: A Teacher Corps Demonstration Project" by Vivian Carter Jackson and Alan Gartner 56
9. "The Lansing School District/Michigan State University Development Reading Program" by Gerald Duffy 66
10. "Murray State University/Hopkinsville Middle School Cycle X Teacher Corps Project" by Gary Schroeder and Bill Price 76
11. "Institutionalization of a Paraprofessional Training Program" by Ronald Britton and Gregory Davenport 83
12. "Social Emotional Education: An Inservice Program by Henrietta Barnes and Mary Samuelson 88
13. DOCUMENTATION 102
14. "An Archive Based Documentation System: The Oregon Research Project" by James Bavry 109
15. "The San Jose State/Alum Rock/Far West Laboratory Project" by Greta Morine Dershimer 118
16. "Delivery, Documentation, and Impact, Evaluation of a Non-traditional, Field-based Graduate Elementary Education Program" by Linda P. Lentz, Thomas F. Breen III, and Ronald B. Childress 137
17. DISSEMINATION 146
18. "Let's Work It Out Together: An Alternative Pattern for School and University Collaboration" by Peggy Hagberg and Decker Walker 149
19. "Task-Process Integration Model for Diagnosis and Prescription in Mathematics" by A. Edward Uprichard, Beverly E. Baker, Nancy R. Dinkel, Cynthia Archer 159
20. DIFFUSION 177
21. "Type I Diffusion—Mastery Teaching" by Ronald B. Britton 188

22. "Type II Diffusion—The Development of Performance Based Instruction: Teacher Performance = Pupil Achievement" by Howard M. Fortney 193
23. "Beyond Field-based Teacher Education: The Concept of Responsive Inservice Education" by Gary Schroeder and Bill Price 202
24. "Type III Diffusion—Classroom Observations and Conferences with Teachers" by John H. Hansen and Keith A. Acheson 212
25. "Type IV Diffusion—Glassboro State College/Camden City Schools" by George Brent 221
26. "A Perspective on Successful Diffusion" by Gregory A. Sather 230
27. CONCLUSION 239
BIBLIOGRAPHY 241

PREFACE

It has been said that a camel is a horse that was designed by a committee. This is a book that was planned, written, revised, and edited by a "cluster." The cluster is a group of 15 Teacher Corps projects which have a common thrust to systematically adapt research findings in the conduct of demonstration projects.

The book consists of five sections. Each section has a preliminary article which introduces the central topic. Most of these articles plus the introduction and conclusion were written by two or more members of the editorial committee, and do not carry an author's name except where they were written by one individual from the committee or from the cluster.

Each section contains several case studies or examples which illustrate aspects of demonstration projects. In addition to the authors of these chapters, whose names are given with their works, a number of other individuals have contributed substantially to the completion of the total monograph.

The Teacher Corps Research Adaptation Cluster is based at the University of Oklahoma. Lee Morris, the executive secretary of the organization, was instrumental in shepherding the efforts of the Board of Directors, the committees, writers and other contributors, overseeing the book's total production. He has provided clear direction to the cluster; specifically to this publication. That direction, we are confident, will be felt within all of the Teacher Corps projects and teacher education at large. Greg Sather is administrative assistant for the cluster, contributing the final chapter. Susan Scull is the cluster's journalist, and in addtion to editing its newsletter, she tied the many parts of the volume together into a final composition despite idiosyncrosies of editors and writers. Linda Green, secretary for the cluster, was aided by Marilee Dunn in the typing and proofing of the final copy. Frances Hall assisted in the preparation of editorial drafts.

The Board of Directors of the Cluster is the official sponsor of the publication and participated in the planning, decision-making, and conduct of the writing project. The members are: Keith Acheson, University of Oregon; George Brent, Glassboro State; Ron Britton, Indiana University; John Bullock, South Florida University; Ron Childress, West Virginia College of Graduate Studies; William Cole, Michigan State University; Howard Fortney, Cullman County (Alabama) Vocational Center; Alan Gartner, Queens College, CUNY; John H. Hansen, Florida State University; Jaqueline Lougheed, Oakland (Michigan) University; Samuel Morrow, Miles (Alabama) College; Lee Peterson, Youngstown State University; William Price, Murray State University, Kentucky; Rob Spaulding, San Jose State University; and Decker Walker, Stanford University.

Teacher Corps has exerted strong leadership over the past decade at the federal level in the improvement of teacher education. It has strongly embraced the position that such improvement is directly dependent upon the adaptation of research available from the several disciplines.

Dr. William Smith, director of Teacher Corps, has been a consistent advocate of the importance of a strong theoretical framework for teacher education. His support of the research cluster within the total Teacher Corps program, exemplifies once again, this advocacy. His counsel has been invaluable.

Bambi Olmstead and Haroldie Spriggs, Teacher Corps, Washington D.C., have participated in board meetings and conferences. Their encouragement, support and patience have been crucial to the planning and completion of this document.

To the many other project members, teachers, administrators, professors who have influenced ideas and experiences recorded in the book, the editors express their appreciation.

Keith A. Acheson
Jim Steffensen

Introduction

For the past 20 years, millions of dollars of federal support have been provided for many aspects of teacher training. As a result of the activities initiated through this support, many innovative practices, products, and processes have been introduced into our schools and educational systems. Using this support, educators have replicated successful activities in different locations, produced some unsuccessful programs in others, and sometimes neglected to share their programs and results with others in the profession.

To make better use of the available federal resources and to alleviate some of the existing problems, recent federal guidelines for education programs required innovators to "demonstrate" successful components of their projects. For example, the 12th Cycle Teacher Corps guidelines stipulated:

> "....The purpose of this subpart is to strengthen educational opportunities...by...supporting demonstration projects for retraining experienced teachers and teacher aides serving in local educational agencies."
>
> In another subpart it was also stated:
>
> "Collectively, Teacher Corps projects should represent a coherent effort to demonstrate to all local educational agencies and communities the potential for training and retraining approaches."

Those same guidelines proscribe five desirable "demonstration" thrusts from which each Teacher Corps project staff can choose a focus. In 1975, eight funded projects chose "the systematic adaptation of research findings " as their demonstration thrust; seven additional funded projects chose that thrust in 1976. Projects that have this strategy as their focus are required to "demosntrate" the potential for training and retraining teachers using the available body of research results which provide validated processes and materials that have not yet been organized into systematic program activites.

Who Wrote This Book?

The frustrations, trials, successes, and failures of the 15 project directors in trying to meet the valued, but not undefined, federal mandate convinced the directors that it would be useful, not only for themselves and their staffs, but also to the personnel of the other projects in Teacher Corps, schools, and colleges, to produce a position statement with operational exemplars. This monograph is the result of that commitment.

The 15 project directors form the Board of Directors of the Research Adaptation Cluster. The Cluster, which is funded by Teacher Corps, provides a training and discussion forum wherein the directors, evaluators, and others can share experiences, problems, and findings. A number of publications have been produced by the Cluster, e.g. *Evaluating Programmatic Impact in Education*, and *Introspect*. The present work is the second monograph undertaken as part of the outreach function.

The 15 projects vary in the kinds of problems they address and the kinds of research findings they apply. Consistent among all of them, however, is the obligation to pursue a five step process which was made explicit in Teacher Corps guidelines.

1) Identify and describe the research findings that will be applied.
2) Relate these to the educational problems being addressed
3) Present a plan for the systematic application of the findings to the activities of educational personnel in local educational agencies.
4) After funding, implement the planned program.
5) Show the applicability of the program to other educational agencies and, after successful implementation, train others where appropriate.

Table 1 provides a glimpse of the nature and range of the research findings being applied.

Table 1
Research Adaptation Projects Funded By
Teacher Corps

PROJECT	RESEARCH BASE
Cullman County AVC	Vocational Education
Florida State	Systematic Consultation
Glassboro State	Precision Teaching
Indiana	Minicourses
Michigan State	Reading
Miles College	Microteaching
Murray State	Giftedness
Oakland	Corrections
Oregon	Competency-based Education
Queens	Peer Tutoring
San Jose State	Sytematic Observation Systems
South Florida	Diagnostic Testing
Stanford	Eclectic
West Virginia COGS	Systematic Goal Development
Youngstown	School-within-a-School; A Diagnostic/Prescriptive Model

For Whom Is This Book Intended?

The primary audience for this monograph includes directors and staffs of funded federal projects, especially Teacher Corps, who have a need to plan and implement a demonstration component. The authors are professional educators with public school and university experience who are currently conducting Teacher Corps projects. It is logical, therefore, that personnel in other

Teacher Corps projects will provide a natural primary audience. However, the Teacher Corps family includes the schools where the projects function, in the school systems where those schools exist, in the universities and colleges which co-sponsor these projects, and in state education agencies which provide liaison. In short, almost all professional educators are represented in the presumed primary audience. The authors hope that readers will find the monograph to be a practical definition of the "demonstration" obligation to the extent that they will not only know what the components of demonstration are but also how to implement them at the project level.

What Is This Book About?

The book contains discussions of six educational concepts and processes which stem directly from the federal commitment to "demonstrate." The concepts are Demonstration, Description, Development, Documentation, Dissemination and Diffusion. Demonstration will be defined as the umbrella concept which includes the other five.

An introduction to the six concepts is provided in this section. In later sections, one devoted to each of the five components of demonstration, detailed discussions are provided along with case studies and other exemplars.

Figure 1 illustrates our overall concept of Demonstration and the relation of the component parts to each other. Several components of Demonstration are not discussed at length in this monograph (e.g. Needs Assessment, Evaluation). They were omitted because the authors feel that sufficient material already exists.

The model presented in Figure 1 contains several standard components that exist in most institutional change models. What the authors have done is to cluster those that relate to Description, Development, Documentation, and Dissemination and to add the Diffusion component as the final step. The addition of that final step implies that it is the obligation of the demonstrators to see that their successes are replicated rather than the traditionally held view that the responsibility lies with the replicator.

Description

Describing the project takes place when it is first proposed to potential sponsors, while it is being carried out, and when it is ready for dissemination or diffusion.

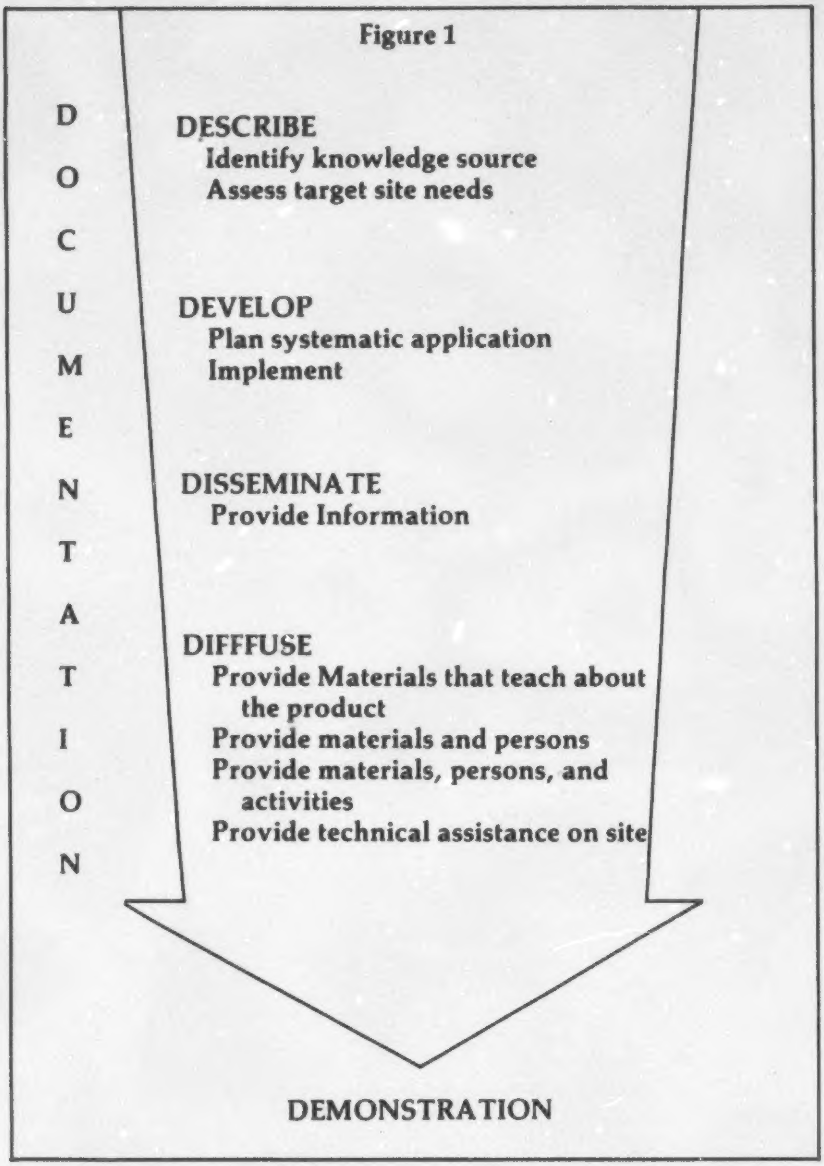
The content of the description may include assessed needs, sources of proposed solutions, a planned intervention strategy, plans for documenting, disseminating, and diffusing.

The section on Description also includes discussion and examples illustrating the importance of clarifying the objectives, the target audience, the instructional content, specific procedures, and predictable constraints. Governance, management, and linkages with other agencies also need to be described.

Development

Development is a three stage process which includes the search for alternative solutions or treatments for the priority problems, the modification and

Figure 1


DOCUMENTATION
DESCRIBE
Identify knowledge source
Assess target site needs
DEVELOP
Plan systematic application
Implement
DISSEMINATE
Provide Information
DIFFFUSE
Provide Materials that teach about the product
Provide materials and persons
Provide materials, persons, and activities
Provide technical assistance on site
DEMONSTRATION

adaptation of the selected solutions or treatments given specific characteristics of the targeted population and environments, and the necessary field tests and revisions of those modifications. In a few cases, existing alternative solutions will not be found. In that case, the developers must create the solution rather than simply modify or adapt existing ones.

Documentation

While documentation is, in reality, not an activity separate from the other components, it will be treated in this monograph separately because of the immense importance it has in the total demonstration effort. Documentation is an essential element of each step in the total process. There are references to documentation throughout each section of this monograph. Documenting what we do and what happens at each step in an educational innovation can help someone else to replicate or avoid certain activities. Documentation, in our view, is separate from evaluation — much is documented which is not evaluated.

Dissemination

It used to be said that it took 50 years for an educational innovation to reach the classroom. Improvements in communication and technology have speeded this process somewhat, but other enterprises such as industry, merchandising, and the military appear to get their new ideas into operation more quickly than educators do. Our current means of dissemination are part of the reason for this disparity.

Once a project has developed something that works, has field tested, revised and implemented it, has documented how it was done, and has evaluated the results of using it, then it has something ready for dissemination. Too often projects end with the filing of the final report. Successful features of all projects should be made available to others. The section on dissemination will present a number of ways that this can be done.

Diffusion

Diffusing is used here to mean impacting upon others so that successes which are achieved in a specific situation, using a specified idea, material, or procedure can be replicated in another situation. It differs from dissemination in that it goes far beyond the concepts "to inform" and "to show." While it is often the interest that is generated by the dissemination efforts that leads others to seek to acquire the ability to replicate, the diffusion process is not simply describing the old activity. It starts from the conditions at the new location and refashions the experiences at the demonstration site in such a way as to enable a new set of actors to replicate programs in an original setting.

There are four types of diffusion. Labels for each type will be provided here and extensive discussions will be found in the appropriate sections. The four types are:

Type I: Materials Alone
Type II: Materials plus presentations by Project Staff Member(s)
Type III: Materials plus presentations by Project Staff Member(s) in an interactive workshop setting.
Type IV: Technical assistance provided on site.

An Example

A hypothetical example may help to illustrate the steps in Figure 1. Let us assume that there was a problem about rats in a certain town called Hamlin and that the federal government funded an agency to DEMONSTRATE how one might deal with the problem. After numerous informal meetings with townspeople, a project governance structure was set up involving community members and a needs assessment was conducted. It was determined that, among other things:

1) A rat problem did exist.
2) Rats and children often occupied the same "lifespace."
3) The rats were attracted by certain musical sounds.
4) A local gentleman, known as the Pied Piper owned the instruments capable of producing those sounds.
5) Poisons which were formerly used to control the rat population had been outlawed by the local Environmental Protection Agency.
6) Traps have been shown to endanger both children and domestic animals.

Options were discussed and given priorities. The local council decided to pursue the musical solution. Project personnel identified the appropriate sounds, trained the Pied Piper, studied alternative means of carrying the sounds to the infested areas (loudspeakers, radios, individual instruments, brass bands) and prepared a documentation/evaluation schedule. They were careful to document all procedures they employed, and kept copies of all data collection instruments and records of all decisions considered, rejected and accepted.

'Pre' data was collected, the Pied Piper implemented the plan, and 'post' data was collected. The consequent complete absence of the rat population led everyone to conclude that the project was a success. Results were disseminated throughout the land and pipers came to Hamlin to be trained to replicate the sounds and behavior. Careful analysis of additional data collected at two of the replication projects, however, indicated a "minor" side effect which did not show in the data collected at Hamlin. It was true that the methods employed at Hamlin got rid of the rats, but other researchers noted that those methods also got rid of all the children in the town. Replication immediately ceased and developers began working on a medley of sounds that attracted rats without attracting the children. Researchers at Hamlin were chagrined at not doing an adequate job of planning the documentation process and pilot testing the proposed solution.

This facetious example (adapted from the 'fairy tale,' The Pied Piper of Hamlin) can be pushed further to illustrate that the six "d's" are not always simple. Obstacles can get in the way. The developer might have found that there was a group interested in protecting the rats, another group was opposed to music in any form, furthermore, the Piper's union would not agree to the proposal. Not only do unforeseen results occur during the process, they can also occur after the fact when we find that we have created two problems by solving one.

One important element does not appear in the model but does deserve mention in this monograph. The management of the demonstration process must be given due consideration when the entire project is planned. Personnel are necessary, funds for released time and instrumentation are needed, sometimes approval must be obtained which is difficult to get, and timetables for demonstration components must mesh with those for other program components.

Summary

The five sections follow a similar pattern. Each section contains a narrative introduction which defines the concept and gives operational meaning to the subconcepts involved. Each section also contains case studies or other examples of the concept taken from actual experience in one of the 15 Teacher Corps Research Adaptation projects.

A summary section follows the five working sections. It reviews the concepts and focuses on implications for a variety of applications.

DESCRIPTION

A demonstration project often needs to be described as part of a proposal seeking funding or administrative support. In many ways this description will be similar to that required of a student proposing a thesis or dissertation. For example, one expects to find a statement of the problem which will be addressed, some review of the published wisdom regarding this sort of problem, a summary of the strategy which will be employed, and a synopsis of the design for analyzing the data or information that will be collected.

Another need for description arises when the project reaches the dissemination phase and staff members wish to inform others of what they have accomplished, with a view toward seeing similar projects implemented at other sites. Sometimes the description written for a prospective sponsor is different in style and emphasis from one written for a potential replicator. There is yet another style of description which is included in our case studies; that is the one which tends to be used in the midst of the life of a project. The three types could be classified as:

1. "The best laid plans of mice and men" (Proposal)
2. "Here's what's really happening" (Midstream)
3. "If we'd known then what we know now" (Dissemination)

A research proposal often begins with a statement of the knowledge source—a theory, a body of research, or a school of thought. Then, the specific problem or experiment is described, in the light of the knowledge base. One begins with an interest in a certain topic and then looks for a neat problem, a likely population, or an experiemental situation. In contrast, research adaptation projects usually begin with an existing situation for which an appropriate body of knowledge is sought. One begins with the problem and then attempts to show in a convincing way that previous research findings or validated procedures and products have a promising application to the existing problem. Regardless of which of these two methods provides the framework for the conceptualization of a project, description activities have several common components which should be discussed.

There are six parts of a project that will require description planning. The six include: (a) assess and describe target site needs or requests for all target groups, (b) identify and describe appropriate knowledge sources and resources to parallel the described needs, (c) describe the strategy planned to deliver resources to target groups, (d) describe how the procedures and results will be monitored and documented, (e) describe how documented results will be summarized, analyzed, interpreted, and diffused, and (f) describe plans for diffusion of successful facets related to each of these description efforts.

Assess and Describe Target Site Needs

It is important to obtain current information about priority goals at a target site. Consensus concerning those goals should be obtained from all involved groups (i.e., target site personnel, target populations, funding agents). Once goals have been identified, clarified, and given priority, it is important to obtain target group status on priority goals.

Needs assessment activities to identify the perception, performance, materials and resources, practices should be undertaken. Sometimes this involves designing and conducting new studies. However, in many cases, documentation concerning target group status is often available and need only be located, summarized and analyzed to illustrate current needs that exist in a target site.

One way activities related to this description can be explained is, "Here is what everyone agrees should be done and here is the way things are now."

There should be a description of who participated in identifying this information. It should include descriptions of community, school, university and target group people who collaborated and participated in this phase of planning activities.

Identify and Describe Appropriate Knowledge Source and Resources

Once goals have been agreed upon and the current status of target groups relative to those goals has been described, it is important to examine current research literature, training materials, and available staff to find appropriate programs, strategies, and personnel capable of bringing about the described improvements in the target groups and target site. These sources and resources should relate directly to the target needs described during the previous activities.

Describe the Planned Strategy

The identification of target groups and needs and the location of resources and personnel are necessary to planning strategies to bring about desired outcomes. This step is often not possible until content experts are available to consider the problems that have been described. They can bring expertise to strategies for implementation that are necessary during planning stages that were unavailable during the two previous phases of description.

Planned strategies that are the product of collaboration among content experts, management experts, and target site personnel should be described for communication purposes. These descriptions become the framework for planning, "Who actually does what to or with whom using what?"

There are several specific description activities that should be discussed here. Important consideration for these activities are included.

Identify the target audiences. A project that aims at helping children from low income families improve reading skills in the fifth grade needs to be distinguished from one which intends to provide inservice teachers in rural communities with skills necessary to cope with new state regulations.

State the objectives clearly and indicate how you will assess whether they have been achieved. There is a temptation to write goals in such abstract terms that it is difficult to see what sort of evidence would convince one that the goals had been reached. There is also a temptation to write objectives and measures in behavioral terms so explicit that it would take hundreds of them to justify a project.

Indicate the content of the instructional program or planned intervention. The case studies in this book are all from projects that are employing content which has been developed, hence the source can be clearly described. Projects which are organized to develop new material fall outside the scope of this monograph.

Describe the procedures that will be used in connection with the chosen content. Providing teachers with explicit materials and conducting thirty hours of on-site instruction in their use is easier to describe than a system which will rely on the responses of consultants to requests from teachers "on the job." In predicting how a project will be conducted, should any likely events occur, they should be included in the description. Some general plan for how the "unpredictible" will be dealt with is also desirable though obviously it can't be specific.

Indicate the constraints which are known to exist. Many of these can be forecast as the result of familiarity with (or investigation of) the situation where the project will take place. Some of the common ones are restrictions due to time schedules, official school policies, costs, community attitudes. Many more could be named; in fact, describing and planning a project can be discouraging in a group when one's enthusiasm is confronted with all the reasons why something can't be done.

Show How Procedures and Results Will be Documented

Good documentation requires careful planning of information needs, collection, management, acquisition, and use. It is important for information concerning the status of the project at a given time to be available for all levels of decision makers. For example:

1. Participants may want to decide whether to continue participating in an activity and they need information on how successful they have been, when the activity has been scheduled in the future, and the agenda planned for future meetings.
2. The sponsor or teacher of an activity needs to know how much progress participants have made in a current activity and how this progress relates to the overall impact plan for this target group. Decisions about whether to continue/discontinue an activity are made on the basis of timely information concerning participants, performance, attitudes, and attendance patterns.
3. The administration needs information concerning the attitudes and performance progress of target groups in order to manage the project. Decisions about whether to implement the next phase of a program, whether to repeat activities, or whether to seek additional activities at a particular level must be based on information concerning the current status of target groups on project goals.

Good communication does not just happen. The procedure for deciding what to collect about whom and when and how to make it available to whom must be planned and described.

There are a number of suggestions and examples in the section of this book on documentation. The description of a project should include statements about how information has been (or will be) collected, organized, and used.

Describe How Documented Results Will be Analyzed, Interpreted, and Disseminated

In the past, most projects were under obligation only to file a final report to the sponsors, trusting that if the work had been successful, the word would be spread. In some cases this has happened; builders of better mousetraps have indeed had the world beating a path to their door. Project staff members have complained about the time it takes to show what they are doing to interested visitors. A well-planned demonstration project will have provided for the preparation of materials to be used in the dissemination phase.

The "what" should be disseminated and "how" it will be disseminated should be planned and described prior to the beginning of the project. Some dissemination activities that can be planned include: (a) weekly or quarterly newsletters, (b) quarterly reports, (c) local, regional or national conferences, and (d) paper presentations. As the reader can see from this list, good dissemination will be costly, and it is important to plan and budget dissemination activities that suit the needs of the target site, the program, the participants, and the funding source.

A careful description of planned dissemination activities will provide guidance on what and how to document during project activities.

Describe How Diffusion Activities Will Take Place

A project with a planned life of two years (like the ones in our examples) cannot be expected to have an elaborate or costly plan for extending their demonstration beyond the local site. However, a five year project, such as those the Teacher Corps will fund beginning in 1978, can.

Diffusion activities require the sharing of knowledge with others so that others can replicate successful programs and procedures in other sites. In this description activity, important considerations are: (a) what will be successful outcomes, (b) who are the target groups for the diffusion activities, (c) what is the predicted nature of the diffusion activity, (d) who will be involved in planning and delivering diffusions, and (e) how diffusion activities will be budgeted and funded.

In the section of the book on diffusion, four types of activities are suggested. We anticipate that in the future projects which are funded as demonstrations with extended life expectancies will be required to explicate and describe their plans for diffusion activities.

In this case study we have an example of a description of a specific site or target population where a carefully planned design is being implemented. Note that the project staff have used input from the participants to modify the delivery system (content and processes) to fit the conditions which exist in the field.

A MODEL FOR ASSESSING EDUCATIONAL NEEDS IN A RURAL SCHOOL SYSTEM — A CASE STUDY

by

Ronald B. Childress*
James M. Applefield

Appalachian Teacher Corps Project
West Virginia College of Graduate Studies

The past ten years have seen the development and rapid rise in application of a major tool for educational planning. Despite a proliferation of needs assessment models available to educational practitioners, some confusion about this concept persists. Furthermore, many of the more popular models fail to address and delineate the applicable implementation procedures so necessary for success in a given school system setting. Consequently, the practitioner is left in the somewhat paradoxical situation of being overwhelmed with information, but lacking specific guidelines and procedures for implementation. This case study will delineate a model for needs assessment, describe how this model was utilized as a component in the planning process, present pertinent data, and consider the specific aspects of utilization and implementation by a school system.

The Educational Setting

Before turning to the specific processes followed, and in order to better understand the unique characteristics of the setting, selected descriptive and demographic data on the community, Teacher Corps project, institution of higher education, and local education agency will be provided.

Institution of Higher Education

The West Virginia College of Graduate Studies is a new institution of higher education empowered to confer master's degrees in three areas—engineering and science, business, and behavioral studies. The mission of the College of Graduate Studies (COGS) is to provide convenient graduate and continuing education opportunities to residents of southern and southeastern West Virginia. To meet this mission COGS has gradually expanded its base of operation beyond the Charleston area and is currently offering courses at several sites within the service region.

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*Dr. Childress is director of the Teacher Corps project and assistant professor in the Elementary Education program area, COGS. Dr. Applefield, formerly research evaluator with the Teacher Corps project, is presently assistant professor in the Department of Education, University of North Carolina at Wilmington.

Following an initial year of needs assessment, selfstudy, deliberation and discussion by the faculty of COGS, a model elementary education program was developed and offered to students in the Fall semester of 1974. Designed as a graduate level supplement to the undergraduate training of elementary teachers, this new program represented a major departure from the traditional approach to graduate training for practicing teachers. An explicit set of assumptions about the nature and purpose of graduate level teacher education served as the basis for the design of the Elementary Education prototype.

Where possible, the theoretical and empirical validation of these assumptions was prerequisite to their ultimate translation into curriculum goals and objectives. These assumptions were taken as purposes of the model or system from which particular curriculum goals, objectives and strategies were generated.

The Teacher Corps Project

Parallel with the development and delineation of any educational program, especially those of a nontraditional nature in a unique setting, come questions of delivery and impact. To address these questions, the COGS Elementary Education Program Area staff developed and obtained a Tenth Cycle Teacher Corps grant. Beginning in June, 1975, this project termed the Appalachian Teacher Corps Project had as its primary goals to deliver and determine the impact of this unique graduate level elementary education program on the teachers and students in a rural Appalachian school setting.

Implicit in this overall thrust was the desire to provide improved educational opportunities for students through the development of more effective teachers and curricula. Thus, the concept of the educational needs assessment was, from the beginning, an integral part of the overall project activities plan.

As a member project of the National Teacher Corps Research Adaptation Cluster, integral to the total project effort was the adaptation of research findings to educational settings. This adaptation process was facilitated through the development and implementation of an evaluative research model that sought to precisely measure and intrepret findings which have direct impact on educational theoreticians and practitioners alike.

The research adaptation and evaluation components of the project were directed toward designing and establishing a data-based evaluative research process which will provide information on the impact of a model graduate level elementary education training program with respect to participant and total program accountability, adaptability, and transferability. Within these parameters, the following specific evaluative research foci were identified:

1. External validation of the graduate level elementary education program impact on participating teachers.
2. Assessment of changes in student achievement, attitude and self concept.

3. Assessment of community attitudes and perceptions relative to the schools and the total educational process.
4. Documentation of consistent and precise implementation of all project components.
5. Development of a computerized model (General Simulation Model of Curriculum) designed to simulate the multi-dimensional influences of classroom teacher behavior as developed by the model graduate program.

The Community

Clay County is located in the central portion of West Virginia. The county seat is Clay, population 479 (1976). A labor analysis in 1976 revealed a total work force of 2,020 individuals (740 males and 904 females) with a total unemployment rate of 15.1 percent. By comparison, the average unemployment rate for the State of West Virginia during the same period was approximately 6 percent.

Although the economy has leveled off or taken a slight upswing across the state, Clay County remains at one of the lowest overall economic levels in the state. When compared with other West Virginia counties on major economic indicators Clay County consistently ranks near the botton.

The Clay County School System

There are approximately 2800 students in the Clay County School System, approximately 1800 elementary (grades 1-6), 250 junior high (grades 7-8), and 750 high school. There are 8 elementary schools with enrollments ranging from 39 to 637. One junior high school and one high school serve the students at these age levels.

The student population has been declining for a number of years parallel with the overall county population trends. The general decreasing enrollment trend although recently modified somewhat by an upswing in the coal industry is projected to continue for several years before stabilizing.

As a consequence of these prevailing and apparently irreversible trends, enrollment at some of the outlying elementary schools has dwindled to extremely low levels. Two schools were closed in 1972-73, and three more in 1975-76, in order to increase educational efficiency and to eliminate small and outmoded school buildings. This trend toward consolidation has resulted in the remodeling of several facilities and the building of one new school over the last two years. The school system administration has been active in promoting policies that would upgrade the physical facilities.

In addition to the teachers and principals at the various schools, there are a total of 5 central office staff members, the superintendent, the assistant superintendent, the director of transportation and absenteeism, a director of special education, and a director of Federal Programs.

Concept of Needs Assessment

The educational needs of a public school system are not static, but undergo change over time. Therefore it is important that school systems periodically review themselves. The forces for change are many and are constantly with us, occurring as a result of changes in pupil and/or parental aspirations, vast increases in knowledge, and a variety of changing economic and societal patterns. To adequately assess the perceived needs of a system requires the involvement of representative segments of the population served by the school system-parents, students, professional staff and others from the community. By seeking needs information from representative groups, the school system can be more responsive to the wishes of its constituency and the requirements of the future.

The identification of needs involves a discrepancy analysis that identifies two polar positions and the difference, if any, between them. For example, a discrepancy analysis might use either of the following two sets of questions: 1) Where are we now? Where should we be? 2) How important is this? How well do you feel this is being done? By comparing the answers to the questions in each of the above pairs, it is possible to ascertain where significant discrepancies exist and where they do not exist.

Of course, obtaining educational needs information is not an end in itself, but instead represents a very valuable source of information regarding the current status of the school system. A needs assessment can provide a school system with some of the best available information on the immediate characteristics of the system's educational programs and those areas where attention and resources should be directed. Thus, the delineation of educational needs provides a sound basis on which to develop educational goals and to establish priorities among them. When a system has clearly enunciated goals that are also marked according to priority, it will also have clearer direction for program planning and development and for the implementation of the overall educational program.

A Four-Phase Needs Assessment Model

Our model for educational needs assessment has four distinct phases.

Phase 1: the needs assessment framework Essential to any needs assessment effort is a set of educational goals or objectives. Whether stated explicitly or implicitly, the existence of goals and objectives serves the primary function of setting broad guidelines or parameters for the overall process of determining needs. The statements that are used in a needs assessment survey have a direct relationship to the current set of goals that characterize a given system. This idea is illustrated in Figure 2.

Phase II: determining educational discrepancies. Utilizing the framework provided by extant goals, the actual needs assessment process is directed at determining educational discrepancies. Essentially this process involves a comparison of "current status" with "expectations" in three areas of the educational setting. These areas are student achievement, program and curriculum operations, and preference assessment (See Figure 2).

Available student achievement data should be collected and analyzed to determine the discrepancies between current student achievement and the expected student achievement levels. For example, assume that standardized achievement test data for fifth graders in a given school system indicated an overall mean grade equivalent score of 4.2 years. The discrepancy, then, becomes the difference between the expected 5.0 mean grade equivalent score and the 4.2 mean grade equivalent score currently being achieved. If possible, it is important to look at such data over time (preferably three or more years)

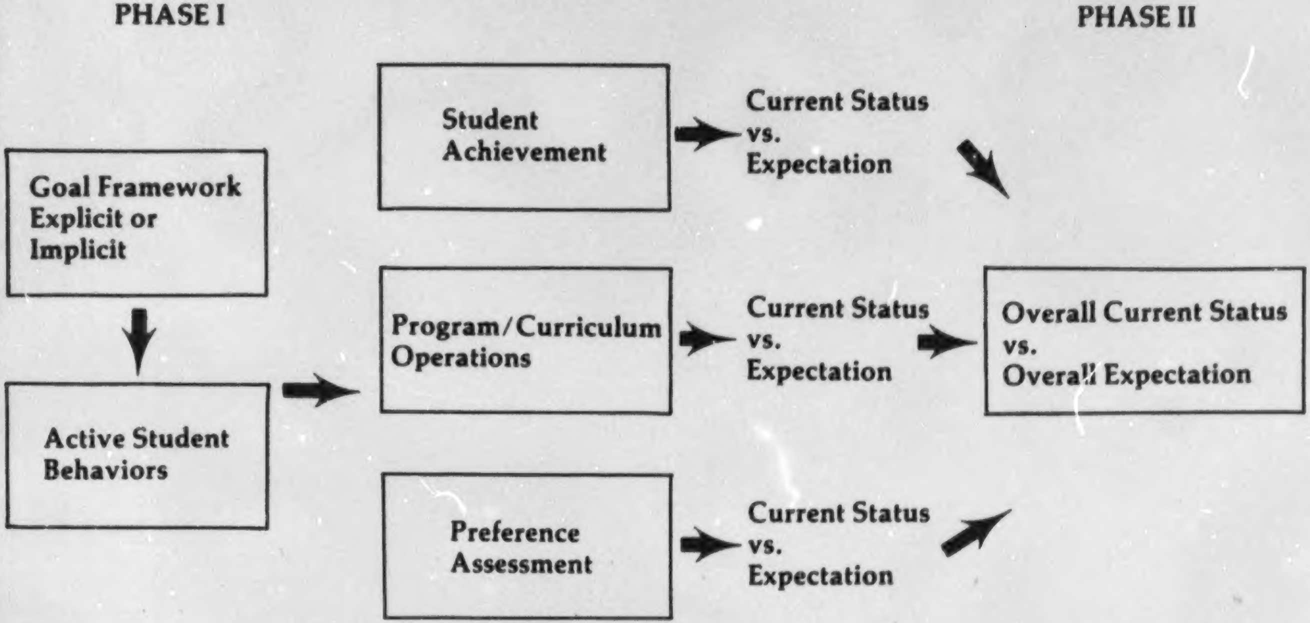
PHASE I
PHASE II
Goal Framework Explicit or Implicit
Active Student Behaviors
Student Achievement
Program/Curriculum Operations
Preference Assessment
Current Status vs. Expectation
Current Status vs. Expectation
Current Status vs. Expectation
Overall Current Status vs. Overall Expectation

Figure 2
A Model of Needs Assessment
Used in the West Virginia
Teacher Corps Project

if the data are available and accessible. Additionally, other types of achievement data (e.g., criterion referenced tests, teacher made assessment devices) can also be sources of valuable input into this phase of the model.

A second major component of the discrepancy phase of the model is to determine discrepancies between the current operational status and the expected operational status of educational programs and curricula. The most important guideline in determining such discrepancies is to ensure an unbiased, objective accounting. One method of doing this is to employ the services of external evaluators. Such evaluators would visit a representative sample of schools. The primary purpose of such a visit is to describe objectively the programs/curricula of the system as they are operationally perceived. Specifically, these evaluators would review and analyze existing curriculum materials (e.g., guides, courses of study), observe actual classroom settings, and conduct interviews with teachers, students, administrators and other staff.

Operational discrepancies can be validly carried out and quantified. Internal consistency (e.g., relationship of the stated philosophy to the operational philosophy, relationship of stated learner objectives to operational learner objectives) and external consistency (e.g., comparison with state department and/or other accrediting agency program and curricula criteria) are important aspects of this phase.

In the third component of the discrepancy phase preference data are collected from four major groups (students, parents, educators and community). The discrepancy is based on an analysis of differences that occur in the responses of the above groups to the questions: How important is this for students? How well is this being done in the schools? The information obtained must be assimilated, analyzed and synthesized into a coherent statement of discrepancies. It is this statement of discrepancies, then, that constitutes the educational needs of the system.

Phase III: setting tentative goal statements. Given the information collected and analyzed in Phase II, educational decision makers in a given system must analyze and interpret this data within the goal framework. Figure 3 includes a diagram of several alternatives for action. The following are among the alternatives:

1. Validate existing goal statements.
2. Develop new goals as indicated and supported by the discrepancy analysis.
3. Refine or revise existing goal statements.
4. Eliminate outmoded or outdated goals.

Using the data provided, system decision makers must analyze and synthesize this information into a comprehensive listing of data-based educational goals without priorities for the school system.

Phase IV: rank ordering the goals. The final phase of the process involves determining the priority of goal statements. The basic rationale underlying this phase is that implicitly or explicitly goal priorities already exist. They are established because the finite nature of resources dictates that educational expenditures must be consistent with some rank ordering of goals. By using the needs assessment process, the system's decision makers will have available an objective set of data to apply to their decisions.

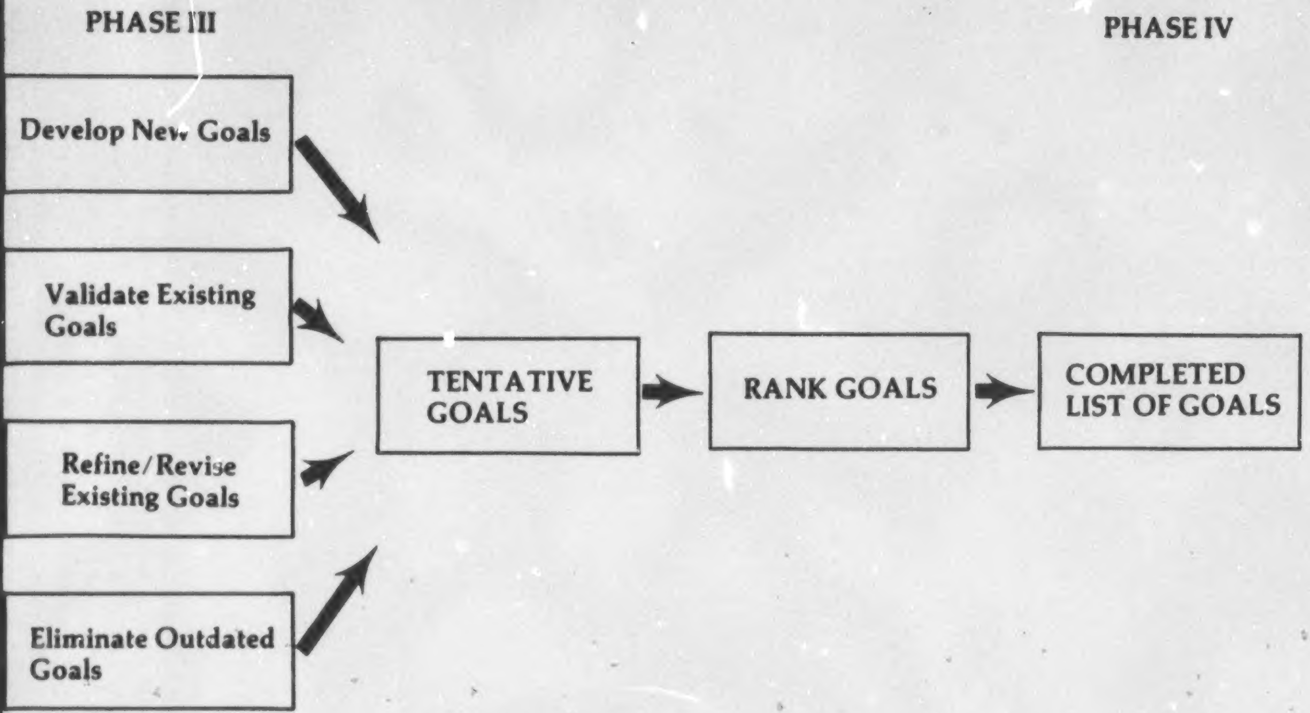
PHASE III
PHASE IV
Develop New Goals
Validate Existing Goals
Refine/Revise Existing Goals
Eliminate Outdated Goals
TENTATIVE GOALS
RANK GOALS
COMPLETED LIST OF GOALS

Figure 3

A Model for Analyzing and Interpreting Data Collected During Needs Assessment

Goal priority can be established by having client groups involved in earlier phases rank order this list of goals. The alternative procedure is to have these same tentative goal statements prioritized internally by the decision makers in the system. However, the second approach is somewhat less desirable because it restricts input from the consumer of education at this final point. In either case the end product is a rank ordered, data-based decision tool concerning the expenditure of fiscal resources and the implementation of educational programs (See Figure 3).

Needs Assessment Procedures

Essential to the effective conduct of a needs assessment in any local school setting is the sincere commitment of local education agency (LEA) officials to support and promote valid input into the needs assessment process. Such support and input can only be achieved with the involvement of key LEA personnel at the outset. Consequently, it is imperative that the local school district board and administrators be completely aware and in support of the needs assessment concept from the beginning. In the particular case being presented here, a series of planning meetings took place between various groups of individuals representing project and Institution of Higher Education staff, Local Education Agency personnel (to include the Board of Education), external consultants and other role groups mentioned previously as having had input into the total process. A key point of this interaction must be a continued emphasis on the functions of the needs assessment process. It must be clearly understood that from the data collected, appropriate decision makers will be better able to make more enlightened judgements as to the worth of various educational goals and objectives on which they can base their actions relative to establishing, implementing and refining programs.

Needs assessment and curriculum planning. Using the programmatic and curricular needs as enumerated above as a beginning framework, the Tenth Cycle Teacher Corps Project undertook the planning and implementation of a comprehensive educational needs assessment in Clay County. Although focusing primarily on one school (the training complex) within the system, it soon became apparent that the lack of a systemwide curriculum framework would make realistic curriculum and programmatic planning within the training complex impossible. Without broad parameters to follow as guidelines, it was extremely difficult to develop consensus on what directions to take. In addition, letting each school (and each classroom) "follow its own plan" was failing to promote inter-school and intra-school communication and interaction.

Given these factors several planning sessions between project staff and school system personnel occurred during the spring of 1976. Resulting from these sessions was a systemwide framework for curriculum planning:

Phase I: Community Preference Assessment. The first step was to conduct a comprehensive community preference assessment which included input from students, professional staff, parents, and other community members. The results of this process provided a discrepancy analysis of "perceived status" versus "expectations" for representatives of the four client groups.

Phase II: Curriculum Status Assessment. Concurrent with conducting the comprehensive community preference assessment, an operational status assessment of the existing elementary curriculum was conducted. This process focused on a two-day on-site visit by an external evaluation team. This team visited selected elementary schools, interacted with staff members and reviewed all available written curriculum documents. This external evaluation team then wrote an analysis of their on-site review.

Phase III: Student Achievement and Attitude Analysis. Selected data describing student achievement and attitudes were collected and analyzed as Phase III of the process. This process occurred concurrently with Phases I and II.

Phase IV: Goal Development and Prioritization. Information collected in Phases I, II and III was collectively analyzed and a set of educational goals established for the elementary curriculum in the Clay County School System. This set of goals will then be prioritized (either internally or externally) to establish a rank ordering of goals.

Phase V: Systemwide Curriculum Committee Development. A systemwide Curriculum Planning Committee representing each elementary school, each grade level, appropriate administrative levels (building, principals and systemwide administrators), and special education was established. The committee was charged with the responsibility for reviewing and recommending revisions in the existing elementary school curriculum.

Phase VI: Curricular Framework Planning and Development. Receiving inservice credit for their work, committee members worked throughout the school year to utilize data gathered in preceding phases, along with technical assistance provided by consultants, to establish an appropriate format for developing a comprehensive curricular framework. Special efforts were made to seek the widest possible base of teacher input by providing opportunities for teacher comment periodically throughout the year.

Phase VII: Process Evaluation and Continuation Plan Development. Procedures were developed and implemented to evaluate the success and effectiveness of the curriculum planning process. Specific attention was given to the degree and effectiveness of teacher input into the overall process.

Preference assessment. Preference assessment is designed to gather a reasonable amount of judgemental input from various concerned groups. The survey instrument used for the needs assessment was an adaptation of one developed by the Memphis City School System in 1975.[1] This questionnaire included items that dealt with actual outcomes of the public school program. The questionnaire items were developed with the assistance of an Advisory Team (parents, administrators, teachers, and central office personnel) and program area specialists of the Memphis City School System. These specialists, working with teachers and staff members, submitted a list of ten to 12 objectives which represented their curriculum area. The objectives were stated at a level of behavioral specificity between behavioral/performance objectives and statements of general intent. Both cognitive and affective domains were included in the objectives which covered knowledge, attitudes, skills and processes. This list of objectives was revised and refined with careful attention given to reducing the language of the items to an appropriate reading level. A first draft of the survey instrument was made by the Advisory Team utilizing the suggestions given. Changes in the questionnaire also occurred as a result of including interdisciplinary statements of learner behaviors rather than statements centered around program area categories. This method was believed to integrate content, process, attitude, and skill development in focusing on the development of the total child. Since these data were to be used in the construction of goals, interdisciplinary statements were thought to be more useful and descriptive in providing needs information for goals. Finally, a group of 57 items were agreed upon.

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[1] A complete description of the instrument development and needs assessment procedures is available in the following documents: *Stage I Evaluation Report,* University of Tennessee, Knoxville, 1975. Bellon, Jerry and Robert L. Saunders. *Program Evaluation for the Memphis City Schools,* University of Tennessee, Knoxville, October, 1975.

The central office staff of the Clay County carefully reviewed this list of 57 items and made some minor changes. These changes resulted in a survey instrument that was felt to be representative of the school system and compatible with the language of the community. Sample items and the instrument organization are depicted in Table 2.

Table 2

An Example Survey Instrument

Educational Expectations Survey for Clay County Schools

Please provide the following information by placing the proper number in the blank to the left of each question .
All Respondents please answer.

____1. Your Age, Last Birthday
(6) 1) 11 or less
2) 12-14
3) 15-18
4) 19-24
5) 35-44
6) 45-54
7) 55-64
8) 65 or over

____2. You have lived
(7) in Clay County
1) 2 years or less
2) 3-5 years
3) 6-10 years
49 11 years or more

____3. Your Sex
(8) 1) Male
2) Female

____4. Your education
(9) completed
1) None
2) 1-6
3) 7-9
4) 10-12
5) Post High School
6) 2 yr. College
7) 4 yr. College
8) Graduate or professional

____5. Total yearly family
(10) income range
1) 0-$4,250
2) $4,251-$12,000
3) More than $12,000

Answer only if you are a student in Clay County Schools (grade 5-12)

____6. Are you a student in
(11) 1) Grade 5-6
2) Grade 7-9
3) Grade 10-12

____7. Do you have Child(ren) in
(12) Clay County Schools?
1) Yes
2) No

____8. Are you on the professional staff of Clay
(13) County Schools?
1) Yes
2) No.

Table 2 (con't.)

II. Please respond to each item below by placing the proper number in the blank under each column (A or B). Place only one number in each column.

Items for Response	A How important is this for students in Clay County? 1-No importance 2-Low importance 3-Medium importance 4-High importance 5-Very high importance	B How well do you feel this is being done in the Clay County Schools? 1-Unsatisfactory 2-Poor 3-No opinion 4-Satisfactory 5-Excellent
Knows the basic skills of a trade and knows how to get ahead in that field.		
Develops ability to solve problems and make decisions in real life situations.		
Understands food and nutrition in maintaining health.		
Develops understanding of other cultures and their influence on history and on our lives.		
Understands the need for cooperation among different nations.		
Understands basic language skills and uses these skills in other areas of learning.		
Develops independent and creative thinking.		

To achieve a representative set of input data on which to base the needs assessment, the following sampling plan was devised. First, the needs assessment team felt input should be obtained from four critical client groups: parents, professional staff, students and other community adults. All professional staff and all parents having students in Clay County Schools were asked to respond to the questionnaire. The school system personnel were most cooperative in assuring that the instruments were sent home with the pupils. Instructions on the instrument requested that parents return the completed instrument to the school via their child. A sample of two classes at each grade level (from 5-12) were selected to respond to the instrument at their respective schools. Thus, 463 students were administered the instrument.

Finally, a random stratified sample based on county voter registration lists was used to select approximately 15 percent of the population referred to as "Community." This group of 811 persons had the survey mailed to them with a pre-stamped return envelope enclosed. Table 3 contains data providing a summary of the number of questionnaires administered and received as usable responses.

Respondents were requested to indicate the perceived "Importance" and "Effectiveness" of a list of 57 active student behaviors. These behaviors were then programmatically clustered into 15 broad areas to formulate a set of goals for the school system.

The discrepancy data were quite revealing, both in terms of the nature of the differences found between perceived importance and perceived effectiveness, and the differences among the responding groups. As might be expected, the greatest differences in values and perceptions occurred between students and professional staff. The greatest curricular discrepancies occurred in the clusters of content areas most frequently referred to as the "basics." Specifically, it was

Table 3

Survey Sample by Respondent Group

Group	Questionnaires Administered	Usable Responses	Percentage of Responses/Group	Percentage of Responses/Total
Staff	121	98	81.0	11.0
Parents	2438	427	12.9**	46.1
Community	811	87	10.7	9.5
Students	463	314	92.9	33.9
TOTALS	3843	926*		

*Prior to statistical analyses, 1014 responses were judged to be usable. Eighty-eight of these were rejected by the analysis due to inconsistent responses.

**This figure is underinflated as it does not differentiate for families having more than one child in Clay County Schools.

in the areas of language arts and mathematics that the largest discrepancies were perceived.

A rather complex computer program was developed to analyze the data contained in the needs assessment survey. Table 4 shows sample results of the discrepancy analysis of four specific questionnaire items. The positive values in the discrepancy column indicate that perceived effectiveness is not equal to the perceived importance. Important discrepancies are shown in Sections I, III and IV. On the other hand, Section II, (Questionnaire Item 15: Is acquainted with a wide variety of music) indicates that there is considerable agreement between the perceived importance and perceived effectiveness. These four examples provide a partial glimpse of the type of information that was available from this type of discrepancy analysis.

When individual questionnaire item statements were clustered logically and programmatically, a series of 15 broad educational goal statements emerged. By combining mean scores for each item included under a given goal statement, an overall mean score for "Expectation," "Perceived Status," and "Discrepancy" for each goal area by respondent group was obtained. Table 5 provides an example of this process for those items clustering under the "Expectation" responses for the goal related to "Development of Skills in Basic Computation with Emphasis on Consumer Mathematics." Equivalent sets of data are available for the "Perceived Status" and "Discrepancy" responses.

Table 6 contains data depicting the results when the item clustering procedures were completed. The result is a set of 15 broad goals for the school system. Additional analyses of the preferred aspects of these goals by client group also provided meaningful data.

Analysis of the data presented in Table 6 reveals the total perceived current status for all goal areas to be somewhat less than "Satisfactory" (a mean score of 4.0). In contrast, ten of the 15 goal areas listed were perceived to be of "High Importance" by the needs assessment respondents. Not surprisingly, the one

Table 4

Sample Information Obtained through a Discrepancy Analysis of Items from a Questionnaire

GROUP	N	Mean Perceived Importance	Mean Perceived Effectiveness	Discrepancy
Staff	97	4.660	3.674	+.986
Students	308	4.461	4.189	+.272
Parents	424	4.712	3.891	+.821
Community	87	4.598	3.840	+.758
TOTAL	916	4.611	3.965	+.646

Item 24: Can add, subtract, multiply and divide.

GROUP	N	Mean Perceived Importance	Mean Perceived Effectiveness	Discrepancy
Staff	97	4.639	3.126	+.472
Students	306	4.167	3.612	+.555
Parents	423	4.586	3.685	+.901
Community	86	4.360	3.512	+.848
TOTAL	912	4.430	3.584	+.846

Item 33: Develops reading skills necessary for daily living.

GROUP	N	Mean Perceived Importance	Mean Perceived Effectiveness	Discrepancy
Staff	96	3.167	3.010	+.157
Students	308	3.357	3.576	-219
Parents	420	3.252	3.208	+.042
Community	84	3.250	3.585	-.335
TOTAL	908	3.279	3.348	-.069

Item 15: Is acquainted with a wide variety of music.

GROUP	N	Mean Perceived Importance	Mean Perceived Effectiveness	Discrepancy
Staff	97	4.371	3.260	+1.121
Students	312	3.599	3.537	+ .062
Parents	422	3.981	3.341	+ .640
Community	86	3.930	3.378	+ .552
TOTAL	917	3.888	3.402	+ .486

Item 6: Understands basic language skills and uses these skills in other areas of learning.

Table 5

Goal Area #3:
Development of skills in basic computation with Emphasis on Consumer Mathematics

				EXPECTATION		
	ITEMS	Parents	Educators	Community	Student	Total
2	Develops ability to solve problems and make decisions in real life situations.	4.557	3.923	4.526	4.368	4.309
20	Can plan a budget and manage money wisely.	4.258	4.084	4.566	4.417	4.355
24	Can add, subtract, multiply and divide.	4.660	4.461	4.712	4.598	4.611
46	Understands how to judge and compare consumer products and how to use credit.	4.010	3.954	4.374	4.247	4.182
10	Uses standard units of measurement, including the metric system.	3.708	3,183	3.608	3.470	3.460
53	Interprets graphs, tables, percent, and geometry in practical situations.	3.412	3.459	3.716	3.578	3.584
	TOTAL	4.101	3.844	4.250	4.113	4.084

goal area perceived as most important with a mean score of 4.43 was "Development of reading skills."

In summary, these preference data, taken together with the discrepancy data from student achievement and curriculum operations, can point the way to a more systematic specification of instructional goals for the system. Thus, the needs assessment process will ultimately provide results for both the consumer of educational services and the producer of educational services.

Table 6

Information Results Obtained with Item Clustering Procedures

	GOAL AREA	expectation*	perceived status**	discrepancies
1.	Development of respect for property, rights and ideas of others and the ability to co-operate.	4.22	3.56	.65
2.	Development of sound mental health, positive self-concept, and individual abilities.	4.18	3.58	.70
3.	Development of skills in basic computation with emphasis on consumer mathematics.	4.08	3.35	.74
4.	Development of reading skills.	4.43	3.58	.84
5.	Development of skills in problem-solving and decision-making.	4.31	3.38	.98
6.	Development of basic language skills with emphasis on clear expression of ideas.	3.88	3.40	.48
7.	Development of understanding on effects of drugs, alcohol and tobacco.	4.29	3.48	.82
8.	Development of skills of a trade with job counseling.	4.21	3.22	1.01
9.	Development of independent and creative thinking.	3.64	3.39	.31
10.	Development of responsible citizenship and knowledge of other culture.	3.96	3.42	.54
11.	Development of undrrstanding of man's relationship with his environment.	4.01	3.41	.60
12.	Development of understanding needed for maintenance of physical well-being	3.83	3.79	.17
13.	Development of understanding in school and community working relations and continuation of education.	4.17	3.30	.87
14.	Development of skills for independent living.	4.17	3.32	.85
15.	Development of understanding and enjoyment in fine arts.	3.58	3.39	.25

*Response categories for "Expectation" were:
1—No Importance
2—Low Importance
3—Medium Importance
4—High importance
5—Very High Importance

**Response for "Current Status" were:
1—Unsatisfactory
2—Poor
3—No Opinion
4—Satisfactory
5—Excellent

Results and Conclusions

Several important results and generalizable principles, some conceptual and some operational, emerged from this case study. Obviously, the model as outlined for developing, adapting and implementing a needs assessment provides others with a specific process. These procedures are quite transportable and adaptable to other rural and possibly nonrural settings.

The increased school-community interaction required to actually conduct the needs assessment was felt to be a significant outcome. Many of the questions raised during the needs assessment process were questions which may not have been addressed otherwise.

The development and operation of a systemwide curriculum planning committee represented a third significant result of the entire process. The potential impact of this committee relative to institutionalization and innovation is implicit in the committee's identification of three primary areas of curricular concern which have evolved from their initial efforts:

a. The need for support in the actual implementation of the curricular framework during the 1977-78 and 1978-79 academic years. Recognizing that curriculum change is a type of social change, a change in people, and not merely a change on paper, the committee feels a real need for planning and implementing inservice activities during the 1977-78 and 1978-79 years which will focus on inter-school and intra-school discussion of the committee's work.
b. Recognizing that schools and curricula do not develop within a vacuum, but within the total social-economic-political environment, the committee is concerned that sufficient provisions be made for evaluation and revision of the initial plan. This concern is of particular importance during the years of implementation.
c. Recognizing the need to continually assess and evaluate curricula, the committee is supporting its ongoing function within the context of beginning to evaluate specific curricular areas (e.g., reading, math, etc.).

Obviously, the set of data-based goals resulting from the needs assessment represents an important result. The goal statements can provide an important benchmark for future systemwide curriculum planning and evaluation.

Finally, the increased intraschool and interschool communication, sharing, questioning and interaction may be the single most important outcome. It is just such procedures that facilitate the development and continued implementation of a viable school curriculum. In final analysis, the needs assessment process may have more impact and significance for long range impact, than the actual product(s).

Note: The authors are indebted to Dr. John R. Ray, Professor, Department of Curriculum and Instruction, The University of Tennessee for his consultation and assistance with the needs assessment process.

In this case study, a project is described at the point where it is beginning to implement a plan and is adjusting or adapting to conditions in the real world which could not be anticipated in the original description or proposal. Note that the knowledge base is preserved even though the target audience has been modified and new variables have been introduced as the result of changes in the nature of the findings.

"STUDENT-INITIATED ACTIVITIES TO INCREASE STUDENT AUTONOMY AND DECREASE DISRUPTIVE BEHAVIOR"

by

Jacqueline Lougheed*

Introduction

In this case study, the focus will be on those activities, strategies and accomplishments primarily concerned with the Describe component of our Demonstration effort. During this beginning stage there are at least two preliminary tasks. We must arrive at a comprehensive statement of the problems to be addressed, and we need to search through the literature for research findings and results of efforts with similar goals. Once these tasks are accomplished, we are ready to work on program design, and the Development, Documentation, Dissemination and Diffusion components of the program.

This may sound relatively easy, but that usually is not the case. It is not a matter of one or two people sitting down in an antiseptic, quiet setting, calmly extrapolating their perceptions of the problems, then spending a leisurely afternoon in the library reading through the literature, and that evening designing an internally consistent, responsible program.

From studies of social systems (Getzels in Griffiths, 1959; Barnard, 1938; Cartwright and Zander, 1953; Halpin, 1966) we know that planning for social action and intervention must be done in consideration of the personal and institutional dynamics operating within that social system. In working with several institutions and agencies (including schools, university, community agencies) we are working with not one but several social systems. A new and temporary social system begins to emerge for the duration of the project to represent the personal and institutional dynamics of this coalition. To this new system come the problems and needs of all the constituencies represented. Participants in this process need to be selected with utmost care in terms of their own level of security and ability to relate to others in this complex arena. They need faith in the group process, and what a group can accomplish when they arrive at mutually determined goals. They need to rise above the provincialism of most social systems which tends to dictate that we map our own domain and guard its prerogatives jealously. They need to throw off the "what's in it for me and mine" syndrome.

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*The author is Director of the Oakland/Farmington Youth Advocacy Teacher Corps Project. The portion of the project described here is the work of the entire Activity II team Ellen Silvers, Dick Ruiter, Becky Morr, Mary Ann Eagner, Don Warren, Jacqueline Scherer, Gil Henderson, Emerson Coats, Gary Shepherd. In addition we appreciate the assistance given to us by Margaret Weisender, Clarence Walker, Allan Gartner, and fellow directors of Youth Advocacy Teacher Corps Program.

Another general problem during the Describe state is that activities usually do not progress in a logical, time-locked sequence. This is also true of the five component parts of Demonstration. There is a reciprocal relationship among the parts with a dynamic interdependent flow back and forth. Nothing is tied down or static, but rather everything tends to be in a constant state of becoming. This is true of any system that is on the move. However, the problem is one of keeping this floating mass in balance and moving it toward the accomplishment of goals in an organized fashion.

The tone set during the preliminary phase of the Describe state permeates the remainder of the program. Whether we are able to establish an organized way of moving toward goals determines to a large extent our successes. With these considerations in mind, let us now describe our project and set the stage for our specific case study.

The Oakland/Farmington Teacher Corps program is jointly sponsored by Oakland University and the Farmington Public Schools and Community. These institutions are within the Detroit Metropolitan area. As with all other Teacher Corps projects our target population is low income, Title I students, and we are engaged in a personalized, professional development program for preservice interns, aides and volunteers as well as teachers, administrators and other support personnel, a community-based component, a program to impact on the educational environment and achievement levels of our student population and a program to impact on delivery systems at the local education agency (LEA) and institution of higher education (IHE). We are different from most other Teacher Corps programs, in that we are one of ten Youth Advocacy projects. Prior to Cycle XI projects with similar thrusts were known as "Correction Programs." The scope was broadened and the name subsequently changed in response to agencies and local governments seeking alternatives to incarceration. With this in mind Teacher Corps wanted to focus special attention on the problems of troubled youth in terms of prevention, intervention and reintegration to the mainstream of life. The major intervention strategy is education. The establishment and support of a collaborative arrangement between and among LEA's, IHE's, agencies, juvenile justice and law enforcement systems, and the community is an integral part of all Youth Advocacy Teacher Corps programs.

As can be seen from this description, our initial planning phase of identifying needs, sorting through sources and arriving at a program design was greatly complicated because of the sheer numbers of participant planners representing an expanding number of institutions and agencies. As an additional complication we were dealing with problems (juvenile delinquency) that are not easily solved and even suggested answers are not easily found. As we progressed through our planning it became apparent that we needed both a school site and an institutional laboratory setting.

Our lab setting is Boys Republic, a residential treatment center for emotionally disturbed, delinquent boys. Wm. Grace, the Title I school and the educational program at Boys Republic are part of the Farmington Public Schools. Even though we have had other Teacher Corps programs before, as a Youth Advocacy program, we found ourselves in an entirely different ball game.

After eight months of comprehensive planning and negotiations there was consensus and support for the proposal submitted for funding. No one was under the false assumption that what we had proposed would be easy to achieve. We were almost through the preservice when an entirely new program thrust was added to our already demanding program. What has been described to this point will now be referred to as Activity I. The program thrust added in September is known as Activity II.

Activity II is the School Crime Intervention Component attached as an amendment to all Teacher Corps Youth Advocacy projects. Activity II is funded by the Law Enforcement Assistance Administration (LEAA) of the Justice Department through an interagency funding agreement between LEAA and Teacher Corps (T.C.). The transfer of money and the development of guidelines happened very rapidly.

It was exactly three weeks from the time the Youth Advocacy Project Directors received programmatic and budgetary guidelines until amendments were submitted and in most cases budgets negotiated.

The extent of Activity II, as stated in the agreement drawn up between LEAA and TC, is that the program is to reduce the incidence of crime, violence and disruption in the schools and the fear associated with these events. The process of achieving this goal is through interventions designed, implemented, and evaluated by students and through the training of school, community, and other support personnel to facilitate and encourage the interventions.

From the conceptual stage of this effort there was considerable debate about the intent of Activity II. It has been argued, and rightfully so, that we should not be engaged in an impact study. This is a very difficult arena and it is unrealistic to think that in 21 months it can be significantly impacted. It should be a demonstration effort to explore and experiment with various strategies and support structures. What is done should be carefully documented and considered as the preliminary efforts in a series of efforts spanning several years. What began as a very difficult undertaking was further complicated by concern over the feasibility of the stated intent. This resulted in lengthy renegotiations. Even though time was spent on the question of impact vs. demonstration, there was never any question about the need to help stem the increase in disruptive behavior among adolescents. Adolescence is a period of turbulance and stress, of trying to become (Erikson, 1950) and yet to a large extent being stuck in a "holding pattern" awaiting adulthood.

It is well documented that:

1) a large percentage of adolescents have problems and most adults have difficulties dealing with these problems;

37

2) the level of disruptive and delinquent behavior as well as alienation and feelings of being "pushed out", "turned off", and "burned out" are increasing significantly;
3) crime and violence in the schools is serious and on the rise; and
4) the level of fear of crime and violence is rising.

Several theories about states of development have emerged in recent years and they suggest new ways of defining adolescents and their needs. Some of these theories deal with moral judgement (Kohlberg, 1969), cognitive growth (Piaget, 1952), and ego development (Loevinger, 1970). They suggest that drastic transformations should take place in the schools. One such transformation could result from the implementation of student-initiated activities (SIA). In Activity II we are operating on the assumption that students involved through SIA will have opportunities for reasonable role taking through a process of planning, implementing and evaluating activities and that through this process they will develop greater responsibility for their own behavior and environment. This, in turn, will reduce disruptive behavior.

Having completed the preliminary steps of Activity II the Describe state of this Demonstration effort had two major substantive issues to work through in terms of our intervention strategy and the body of research supporting the strategy. Secondly, we had major organizational and programmatic needs. The two dimensions will be considered separately.

Getting students involved, participating and initiating is a very difficult task. In a search through the educational literature we found very few examples of this approach. Among those found were getting children involved in teaching and thereby learning by teaching (Gartner, Kohler, Riessman, 1971; Allen, 1976), youth responsibility (Newmark, 1976) and experiential learning (Graham, 1975). However, there were several attempts to get young people involved in a variety of participatory activities sponsored by the Office of Economic Opportunities during the War on Poverty. Following closely on these programs have been activities centering on student participant involvement. These activities are under the heading of Youth Participation (YP) programs.

The only organization to have devoted its activities exclusively to issues and practices of YP programs is the National Commission on Resources for Youth (NCRY). For the past nine years NCRY has been identifying and investigating UP programs across the country. Over a thousand efforts have been systematically validated using NCRY's standards. (NCRY, 1975).

> It must be stressed, first, that the criteria, though couched in prescriptive language, are intended to describe an ideal to which programs ought to aspire, and, second, that relatively few actual Youth Participation programs can claim that they meet them all. All the items mentioned have been found to be the frequent attributes of programs that appeared most successful (by impressionistic assessment). It is probably prudent in these early stages of investigation to apply the criteria leniently, lest worthwhile programs be too hastily "disqualified." Besides, viewed realistically, the criteria are demanding, and those who can only approximate a

> few of them should not be entirely discouraged: the youth involved will probably be better off, in any case.
>
> With these caveats firmly in mind, then, we may proceed to the formulation of an elaborated definition of Youth Participation that can serve both to assess the extent to which a given project approximates the hypothetical ideal and to guide in the planning and design of new Youth Participation programs. **Youth Participation can thus be defined as involving youth in responsible, challenging, action that meets genuine needs, with opportunity for planning and/or decision making affecting others, in an activity whose impact or consequences extends to others-i.e. outside or beyond the youth participants themselves.** Other desirable features, whose necessary inclusion in the definition may be debated, are provisions for critical reflection on the participatory activity and the opportunity for a group effort toward a common goal.

Unlike many other educational reform movements, such as open classrooms, which have been developed by theorists and professionals then implemented in the schools, YP has been a grass roots movement. Programs have been developed to respond to local or individual needs.

NCRY states that an appropriate metaphor:

> ...for this process might say that Youth Participation has not been cultivated by educational farmers systematically sowing programmatic seeds to produce a predictable crop; rather it has been a spore-like propagation: spawned from cells (i.e., both needs and resources) that are in the air everywhere; having taken root in spots where the soil and the climate are favorable; in a form adapted to its surroundings. Indeed, Youth Participation projects have sprung up, spontaneously and in growing profusion, like mushrooms across the national landscape.

According to NCRY not all YP projects are associated with schools but in their estimation the better ones (using their criteria) provide for deliberate learning of some sort to complement the experience. Every academic subject has its practical application. A single effort can have a ripple effect on other curricular or social activity within the school. A broader effort can have impact on the climate of an entire school. They also point out that service can be the unifying theme of the entire curriculum.

Whether YP is successful or not depends to a large extent on the adults involved. NCRY asserts that participating adults must have respect for young people's capabilities, sensitivity to their needs and feelings, trust in their ability to act responsibly, and the acceptance and judicous exercise of one's own natural authority as an adult. Educators in the past have not been selected or prepared with this in mind. Therefore, trying to initiate and implement this intervention strategy has tremendous implications for our project.

YP programs in the past have primarily resulted from an identified need based on local conditions. We have moved into a school for the purpose of helping children in that school develop skills to enable them to plan, implement, and evaluate programs addressing needs that they will identify during the project. It is one thing to say that students should have the opportunity to make decisions, to exercise real responsibility and by doing this, to gain new awareness and ownership of their own behavior and environment and it is another to institute a process to support and encourage this very different style of student behavior.

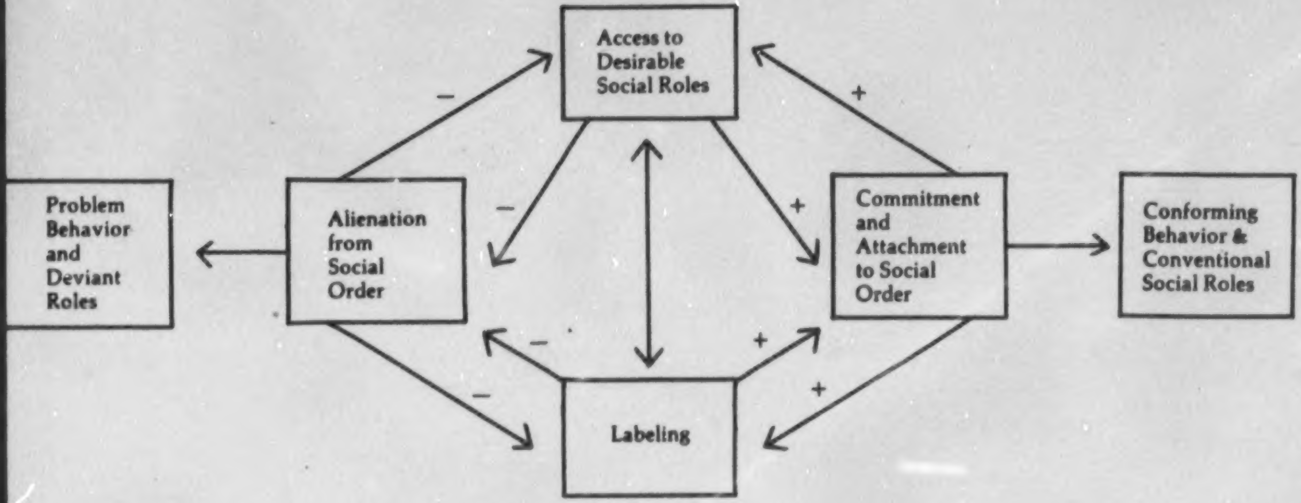
Can this strategy work with disruptive youth? In the past, misbehaving youth have been identified and isolated and various programs have been designed to change attitudes and behavior. The research on such programs tends to show they had no favorable long-term effect and frequently unfavorable short-term effects (Center for Action Research, CAR, 1976). Following the Juvenile Justice and Delinquency Prevention Act of 1968, the Office of Youth Development (OYD) began funding a series of community-based youth development and delinquency prevention programs with a sound research component. In 1974, Congress transferred the mandate for delinquency prevention from HEW to the Justice Department's LEAA. However, the OYD continues to support policy research and demonstration efforts. Their work is no longer limited to helping youth in trouble, but toward finding the best arrangements for each community to design and implement effective programming for all youth. While more research must be done, enough data have been accumulated to strongly suggest that only through locally developed and supported programs which engage all youth, will the problem for those labeled delinquent be reduced (CAR,1976).

In general, the strategy for YD developed through the research of OYD proposed that institutional failure and negative labeling limit access to desirable social roles, and that when this obstacle is recognized as an institutional blockage rather than as a personal inadequacy, is is less likely to produce alienation and deviant forms of behavior. A healthy course of youth development involves: 1) participation in and access to meaningful, responsible social roles in each of the major socialization institutions-home, school and work; 2) positive labels from parents and friends, and favorable self-images; and 3) acceptance and integration into conventional institutional settings.

The YD model displayed in Figure 4 (CAR, 1976) is a dynamic model which assumes feedback to reinforce the direction of the basic process. Alienation feeds back upon failure and labeling, accentuating and compounding those negative experiences for the individual.

> On the deviant side, the individual is caught in a process which leads to a deviant career or role-accelerating failure, negative labeling and alienation, with increasing dependence upon illegal or illegitimate opportunities for social rewards. At the individual level, the objective of delinquency prevention and youth development programs is to intervene in this process and reverse it, providing increasing access to desirable social roles, decreasing negative labeling and feelings of alienation, and thereby reinforcing conforming behavior patterns and involvement in conventional social roles. At the institutional level, the objective is to identify and change those aspects of institutional structure and processing which 1) limits access to desirable conventional roles, and 2) stigmatize youth through a negative labeling process (CAR, 1976).

Figure 4
Youth Development Model


Access to Desirable Social Roles
Problem Behavior and Deviant Roles
Alienation from Social Order
Commitment and Attachment to Social Order
Conforming Behavior & Conventional Social Roles
Labeling
–
–
–
–
+
+
+
+

+ = high access, positive labeling
— = low access, negative labeling

Research to date supports the viability and validity of this model (*Behavioral—Research and Evaluation Corps., Volume 12, 1976*) and the strategy being proposed on youth development. However, further testing and replication of the research is needed. It is our intention to do this in Activity II.

This brings us now to our second major dimension of Describe, the dimension concerned with organizational and programmatic needs. We were under pressure to make several important decisions before the amendment was submitted. The first was to select a school not involved in Activity I but in the same LEA. Our next task was to select key staff again not involved with Activity I. In essence, we were being asked to develop more than an amendment. The tragedy here is that both Activities are full scale endeavors in their own right. Both are equally significant in terms of needs. In addition, relatively little is known about successful strategies to implement the intervention. Hence, both Activities have suffered because of this division of efforts.

One condition that did help the situation was a built-in planning period of approximately four months after the amendment was approved. At this writing we have been in operation for approximately five weeks.

What Was Done

There were several organizational tasks which needed attention. They were:

A. To select a school on the basis of identified levels of needs and an expressed willingness to cooperate and participate in the project.
B. To select a staff for Activity II and identify university, school and agency people for technical assistance to the staff
C. To bring together representatives from the various institutions, agencies, communities, to begin building a coalition.
D. To develop a feasible program design.
E. To select the student participants.
F. To develop a course of study to transmit enabling skills for the student participants.
G. To develop documentation and later, dissemination and diffusion strategies.

How It Was Done

A. Selection of school. Because of problems involved in crossing school district boundaries, we were asked to select a secondary school in the same district as Activity I but not involved in Activity I. The Site Coordinator for Activity I, Dick Ruiter, met with all of the secondary principals for assessment of needs and assessment of levels of disruptiveness in their individual school. He also met with representatives from Youth Assistance, Area Advisory Council, Law Enforcement and community. On the basis of this input, we narrowed down the list of possible schools. He then went back for a second time to talk individually with the principals of the remaining schools on their willingness to participate in the program. On the basis of this second set of interviews, a school was selected. Much more time should have been spent on the site selection. More people from different role groups should have been interviewed. Observations should have been made. Climate and organizational studies should have been conducted.

The school selected is a junior high serving a relatively representative sampling of junior high students in the district. The school has a student population of approximately 1200 students in grades seven through nine.

B. Having selected a school we then selected an Activity II Coordinator from that staff. Because of the nature of this endeavor, we felt it was important to have as Coordinator someone known to the principal, staff, students, parents and community. Among the support staff we selected two newly graduated interns. We thought this was important since the school and Coordinator were new to Teacher Corps.

Additional support staff from the school, university and agencies were identified to supply technical assistance.

C. Developing a coalition. After our preliminary discussions with members of the various institutions and agencies we formed a planning committee. This committee tended to be too large to use as a working group and smaller task forces were formed.

In addition, as a way of promoting ideational agreement, we began a seminar-discussion series with representatives from the institutions and agencies, teachers, administrators, parents and community persons, and leaders in the field of youth services to brainstorm on problems of youth today, the responsiveness of institutions and agencies to these problems and possible new and more effective ways of addressing and solving these problems. The seminars have been extremely productive.

D. Program design. The preliminary needs assessment in selecting a school site was based on perceptions of key staff in the cooperating institutions and agencies. For program planning this information was augumented with additional data including perceptions of teachers, students, and parents through interviews and surveys. Based on this expanded assessment certain patterns began to emerge. Many students felt a lack of personal autonomy. Others were described (and described themselves) as being out of the mainstream of the school and community. It was decided that the program should enable students to reassess their feelings about themselves, their school and their community, through observations, surveys and questionnaires. The program should give the students a certain feeling of prestige and group identity, should provide some extrinsic and intrinsic rewards, and activities planned should be both service and action oriented.

We decided to call our target group of students the "Youth Corps" (YC). The YC is composed of an equal number of seventh and eighth grade students. The ninth graders were eliminated so that the YC would stay together for the duration of Activity II. A school-community advisory council was selected for the Activity with the Steering Committee of the total Teacher Corps project being the final governance body.

The program was divided into a planning stage of four months followed by three implementation periods of one semester each. First semester is for YC team development, skill building, and needs assessment and activity planning. Second semester is for activity implementation. Third semester is for expansion of SIA within the total building and final evaluation.

E. Sample. Experimental and control groups of 45 seventh and eigth grade students each, were drawn randomly from 300 student volunteers to represent the three broad behavioral groups present within the student population. Twelve "expert" raters (teachers, counselors, administrators, agency people) rated the volunteers into the three groups. The groupings are:
   1) Disruptive — those students who have had contacts with law enforcement and other community agencies.
   2) Borderline Disruptive — those students with no official contact with youth enforcement officials or agencies but who have been disruptive in school and/or community.
   3) Non-disruptive — those students who demonstrate nonviolent, non-disruptive behavior in school and community as well as acceptance of adult-initiated behavioral norms.

F. Course of Study. Phase I course of study centers around group building within YC and skill building in decision-making, group process, communication, process observation, interviewing, survey and questionnaire techniques, management by objectives, program planning, implementation and evaluation. During Phase I, YC carries social studies credit. Social studies content given to seventh and eighth grade students during this semester has been condensed into mini-modules. These modules will be delivered by social studies teachers in a block of time. The course of study for the next two semesters and its delivery will depend on the SIA and additional need for support.

G. Documentation. There are three separate levels of documentation in Activity II. LEAA, through an independent research firm, is gathering baseline data using an adaptation of NIE's "Safe School Study." Staff from the research firm will summarize responses to questions and groups of questions across schools and across subgroups of schools. For example, they will look at the responses of students in large vs. moderate vs. small schools. They will also look at responses across sub-groups of respondents; e.g., freshmen vs. seniors, female vs. male students, teachers with less than five years vs. teachers with more than 20 years experience.

The survey data will be used to relate classifications across schools based on information such as the type of intervention, the extent to which intervention expectancies were met, and the kinds of difficulties encountered in establishing interventions.

Teacher Corps, Washington, will have the documentation gathered by the research group, separate Quarterly Reports for Activity II, and site visits. The project will document SIA and the strategies and processes supporting these activities as well as changes in student perceptions of themselves, their school and community.

Results

Initially we thought that the four months set aside for planning would be sufficient. We greatly underestimated the amount of time needed to go through all of the planning stages outlined above. We felt we were into Development before we were adequately prepared. However, given all the problems encountered, we were extremely fortunate and relatively successful with the **Describe** component.

Problems Encountered

Time to plan adequately was one of our biggest problems. This is a very difficult area and it has taken us much longer than anticipated to finish the various substantive and organizational dimensions of the **Describe** component of our **Demonstration** effort.

We were rushed into Activity II with less than three weeks from guidelines to negotiations. As a result more heat than light was created and we spent considerable time putting out fires. Some scars remain.

Because Activity II came along in September, personnel at IHE and LEA were already assigned.

It was very difficult to arrive at an acceptable definition of disruptiveness. It is a very relative term. What is disruptive or reasonable in one setting is not in another. Not only is the setting a determinate but what one student does can be labeled disruptive while another student can exhibit the same behavior and it is considered reasonable.

Professionals and parents view our intervention strategy variously as ridiculous, silly, threatening, destructive, or a waste of time.

There are problems involved in an inter-agency arrangement. Intent and expectations are not always mutually shared. Each agency tends to have its own interpretation of what should be done. Each agency feels the need to evaluate and document.

Strategies

Allowing more time to plan and allowing things to evolve and progress at their own rate as the emerging new structure develops are important strategies. It is important to allow enough dialogue and participation from the various groups, locally and nationally, to insure clarity of purposes and ownership.

Generalizable Principles

It is amazing how insightful one can be after the fact.

Teacher Corps people are amazingly resilient. Red tape can be cut when money is involved. Teachers, parents, administrators are surprisingly trusting and supportive when they understand what is going on. Students can be very exciting, reasonable, creative and thoughtful when these types of behavior are reinforced. Students can initiate meaningful activities, and it is beginning to happen in our Activity II.

In this description of the environment where a project is being implemented we have an example of a frank discussion of the obstacles and constraints which must be dealt with as project personnel work with school faculties. The kinds of difficulties which are described will be familiar to readers who have had similar experiences, yet the specific mix of problems will be unique for any particular project. Hence there is need for adaptation even when the planned intervention has been carefully thought through and clearly described.

THE INTEGRATION OF PRE-SERVICE, IN-SERVICE AND PARAPROFESSIONAL TEACHER TRAINING

by

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The Youngstown State University/Youngstown Public School 11th Cycle Teacher Corps Program was designed to meet the concern, expressed by the central adminstration, that in the secondary schools there was a lack of follow through of the attempts to individualize instruction begun in the elementary schools. This need, along with needs and goals expressed in a self-evaluation performed by one of the local high schools, formed the basis for and gave direction to the development of the project. In addition to input from the public school system, the Dean of the School of Education encouraged the investigation of a field-based teacher education program for in-service and pre-service teachers as well as paraprofessionals. These sources, therefore, gave focus to the Youngstown State University Project which employs a research adaptation model focusing on the field-based training and retraining of teachers for the purpose of implementing a program of individualized instruction on the secondary school level.

Adaptation of Research

In order to achieve a level of individualization so vital to the secondary student, it became necessary to attach a diagnostic/prescriptive prerequisite to the training of teachers. Individualization thus becomes an attempt to meet the students' needs based on a teacher and/or student analysis of the diagnostic data.

Individually Guided Education

The logical first step was to explore teacher training associated with classroom and school organizational patterns that would permit the development of individual student talent.

Individually Guided Education (IGE) programs (Sorenson, Poole, and Joyal, 1976; Kettering, 1975) encourage multi-age grouping of students, team planning and team teaching on the part of the teachers, and total utilization of educational personnel (counselors, principals, etc.) in the teaching-learning process. Individually Guided Education is achieved through a unique inservice program designed to reorganize and redirect the time, talents of energy of all persons concerned with the educational process. Everything centers on two major elements — individualized instruction and continuous improvement.

The processes for individualizing instruction provide appropriate learning programs for each student based on where the student is and how he got there (diagnosis) and, what he needs to learn next, and how to select the best ways for him to attain those objectives (prescription).

The continuous improvement processes provide constant opportunities for interaction among students, parents and teachers within a school. Students as well as staff members analyze what was done, design better ways of doing it, and then try the new technique. In short, students are encouraged to become increasingly self-directed learners.

Basics

Extensive research by Irving Sigel, Hilda Taba and others (Taba, 1976) indicates the critical importance of the teacher and the teaching strategies used if students are to develop the ability to think and solve problems. Although the teaching strategies may be suggested in teachers' guides to instructional materials, there is ample evidence that written suggestions do not guarantee that teachers are able to use the teaching techniques described. For example, there is a vast difference in outcomes between using a suggested question from a guide that asks students to make cause-effect relationshops and having the skill of questioning that helps students make, clarify, and explain such inferences.

In an attempt to develop a corps of teachers with a strong background in diagnostic/prescriptive teaching, it was determined that additional training was needed related to the skills of questioning. The program, "Building and Applying Strategies for Intellectual Competencies in Students" (BASICS), was explored.

BASICS is a series of training programs in which teachers learn to plan and use teaching strategies which are specifically designed to develop certain fundamental thinking skills in students. Additionally, BASICS, like IGE, does not involve learning to use new instructional materials or a new curriculum. Instead, it focuses on learning teaching strategies which enable the teacher to make more frequent and effective use of programs and materials already available in the classroom.

A "marriage" between the BASICS program and the IGE Secondary Program appears to be a most logical, supportive and structurally sound union. Both programs have the same goal in mind — a better prepared, highly motivated and self-directed student, who has been taught a sense of worth because others cared.

Learning Disabilities

At times educators use the term learning disability or learning difficulty (Johnson and Myklebust, 1967; Mann, 1976) to explain when and why a student has failed to work and/or produce at a level of expectation. Psychoneurological disturbances of learning can, and should, be described and categorized in various ways. Behavioral classifications are made in relation to brain disfunctions. For a classroom teacher to do an adequate job, s/he must be more than familiar with the types of learning disabilities confronting the majority of students in class, and be able to write a prescription or a referral sheet on each. This is not to say that today's teacher must be a qualified learning disability specialist. It only means that the classroom teachers of today more often than not allow a learning disability to go unnoticed totally due to the voids in their own professional training.

Many times, a learning difficulty can be corrected very simply just by changing teaching/learning strategies with the youth in question. A classroom teacher trained as a generalist must be able to recognize one's own limitations and when to refer a case to specialists.

Reading Skills

Many of the learning difficulties currently receiving public attention have to do with students who have inadequate reading skills (Hammil and Bartel, 1975). For this reason the Youngstown Teacher Corps has as one of its goals the preparation of inner-city secondary teachers who are aware of the need for more effective reading skills at all levels and who can create a classroom atmosphere conducive to teaching reading in the content area.

The key to the entire program lies in the teacher's ability to design and implement an individualized personalized and systematic instructional program.

Teacher Corps since its inception in 1965 has advocated the importance of learning by doing. Since that time we have witnessed numerous terms associated with such learning. The terms competency-based, field-based and performance-based all connote a degree of learning by doing through field experimentation. Organizational programs geared to promote such activities have received labels such as IGE, BASICS, and diagnostic/prescriptive teaching. All of these programs are designed to measure (or allow for such measure) students performance based on predetermined goals.

Learning Community

The training of teachers and teaching assistants has long been of concern to professional educators. Even though field-based pre-service teacher training programs have been with us for some time, relatively few students have more than a few weeks of practical "student teaching" experience in their senior year (Spillane and Levinson, 1976). Field experiences for pre-service teachers are often ill-conceived or poorly executed. Often the college can exercise little control over the student's experience, and the school is unable or unwilling to provide the experiences the college deems necessary. This situation is aggravated by the reluctance of most college education faculty members to spend time in the field themselves. College faculty observe student teachers infrequently and almost never become more than superficially involved in the field site.

Although it may be argued that a large part of the pre-service teacher's training can be conducted effectively on the college campus, this is not the case for in-service teacher training. The in-service teacher does not need more knowledge of subject matter but rather help in applying methodology to the teaching of subject matter. S/he needs help in the translation of theory into practice. The college faculty member must therefore be in the schools with the in-service teachers and with the students. In-service activities must be carried out in the setting in which the learners normally work together. In addition to basing in-service education in the school setting, college faculty must encourage, guide, and support teachers in systematic field-testing of new ideas as an integral part of their continuing education (Rubin, 1971).

The third group of candidates for field-based teacher training are the paraprofessionals. Many diverse training programs (Gudridge, 1972) have been established for this group. While all are field-based, a number of additional features seem to be necessary to insure the success of paraprofessionals in the schools. Because of the complexities of the new teacher-paraprofessional relationships the training program must include an emphasis on reexamining the teacher's role, exploring the special contributions paraprofessionals can make to the instructional setting, and preparing the teacher and paraprofessional to work as a team.

The Youngstown State University Teacher Corps Project included the above recommendation in designing the means by which the research on individualized instruction would be interpreted and adapted to the school setting. A program of in-service, pre-service, and paraprofessional teacher training was designed to take place in a single secondary school in Youngstown, Ohio. The teachers at each of the three levels were to function as a team in training for and implementing individualized instruction.

Learning Environment

The site for the location of the learning community was chosen by the central administration. North High School is one of six high schools in Youngstown. This inner-city high school (8-12) is the smallest high school in the city with a current enrollment of just over 700 students. Its ethnic make-up is approximately eighty percent black, seventeen percent white and three percent "other." The professional staff of forty has a twenty percent minority population. The majority of North High graduates find their way into post secondary educational institutions, mainly college.

Youngstown State University, on the other hand, might also be considered an inner-city, urban university, but its student population does not reflect the city's ethnicity. A vast majority of the University's clientele is white with only a small percentage of the students representing the two largest ethnic groups with the city, black and Puerto Rican.

Graduates of the Youngstown State University's School of Education teacher training program usually find their way back into the public schools from which they graduated. Traditionally this has been within the five counties (representing two states) nearest the University, from which come ninety percent of the University's student body. The Youngstown State University School of Education has heretofore had little experience in or effect on the Youngstown City Schools.

Implementation

The intitial negotiations with the secondary school administration and the director of instruction for the school district centered around the implementation of a diagnostic/prescriptive teaching center. As conceptualized, the model would permit the University staff, Interns, and LEA representatives to man the center. Classroom teachers were encouraged to identify students who were having difficulty performing in the "traditional" classroom setting and refer these students to the center. Upon entry to the center each student would be given a battery of written and verbal tests in an attempt to diagnose learning problems. Subsequent analysis would hopefully produce a teaching style more conducive to the student's learning style. Further training with the classroom teacher would produce a learning environment in the classroom that would better meet the needs of each student as s/he reentered the regular classroom. As a result of such a program, classroom individualization would be achieved based on "real" needs. The success of such a program would also be enhanced as the classroom teacher developed his/her own skills for individualization based on training for a specific series of students.

To encourage teacher participation, an Urban Master's Degree program was to be developed through the Department of Secondary Education that would focus on the process of teaching. The experimental program as conceptualized was to train the teachers in diagnostic skills as well as some prescriptive skills. We were most interested in having a master teacher who was capable of diagnosing reading and learning difficulties, treating the simpler cases, and referring the more critical to the school specialist.

The master's degree experimental program was met with a great deal of concern from the five departments within the School of Educaiton. Much of this concern centered around the protection of individual department course offerings. The effort to involve all departments in the negotiation caused us to temporarily abandon the attempt to make the master's degree a School of Education program and to work solely with the Secondary Education department, the School of Education dean and the dean of the graduate school to develop a program specifically for Teacher Corps interns and portal school staff. With the approval of the Experimental Urban Master's Degree program in hand we have reopened negotiations with the entire School of Education for approval and adoption of the school wide master's degree program available to any student enrolling at the University. We are confident such a program will become a reality before the conclusion of our current grant.

The current Experimental Master's program includes the adoption and adaptation of existing School of Education courses as well as the creation of new courses. All courses are offered at the portal school during the school year and on campus during the two summer sessions. In addition, short workshops are held both at the portal school and on campus.

Due to an overcrowded building, the diagnostic center program has not been fully realized. The center has to be mobile, and consequently has lost a great deal of its effectiveness. Furthermore, teachers were not ready for such a program so it was necessary to provide them more preparation for this program than had been expected.

Participation in the master's program does not mandate implementation of the other Teacher Corps activities, hence such implementation has not proceeded very far.

The Teacher Corps staff, team leader, and interns spent several frustrating months talking, suggesting, listening and waiting. While the teachers participated in workshops, signed up for courses, and tolerated Teacher Corps in the school, very little else happened.

Several specific proposals fell on deaf ears. One example is an educational learning program based on the newspaper. Such programs are common about the country. Though such proposed programs were carefully chosen to meet the school's stated needs, they were not accepted by the faculty. It is true that they were not initiated by the faculty. Complaints were, however, as loud as ever.

In an attempt to initiate some type of academic activity in the school, the team leader and the three interns developed a one semester course, to meet two periods per day, which was designed to give the students a familiarity with and knowledge of the functions and operating procedures of local community agencies. The course, Community Learning Experiences, will include experiences with communications media, the police and court system, social agencies, local industries, and others. The team leader and interns will present a brief introduction to each agency. The introduction will be followed by a visit to the school from a representative of the agency. Students will then visit the agency for one or two days and spend one day summarizing the experience. The major assignment for students will be small group projects and presentations on selected agencies to be presented to the North High School student body. This course will be offered on an experimental basis in the Fall 1977 semester. It is expected that the course will be elected by seniors who need credit for graduation. Since the first group of students will be chosen on the basis of teacher recommendations, a small select group will pilot the course offering. If the course is well received by the students, faculty and community, it is planned that it will become part of the regular course offerings of North High School.

The acceptance of the Community Learning Experiences course by the principal gave renewed hope that something could be accomplished at North High School. Informal Discussions with teachers continued to elicit responses of "it's too late to do anything" to queries about what they thought needed to be done. It was therefore reasoned that a specific proposal and model was needed based on the school's self-assessment, the adaptation of research on individualized instruction, and the use of a teacher training team. Consequently, the idea of a school-within-a-school began to take shape. The first proposal met with great resistance on the part of the principal. A second, more specific proposal met with similar resistance. However, consequences of alternative grading procedures had been investigated and resolved, successful implementations had been documented, space and teacher requirements had been documented, space and teacher requirements had been specified, alternate means of meeting stated curricular objectives had been mapped out, and implementation guide lines had been provided. In addition sample curriculum units and diagnostic/prescriptive procedures had been described. Obstacles to the second proposal were more difficult to generate; all objections were seemingly answered. However it soon became clear that the computer generated schedule would be a problem. Students had tentatively selected courses in February for the Fall semester and we were asked to wait for the completion of the computer print out to continue our plans for a school-within-a-school.

Those familiar with such scheduling and attempts to change it after it is completed can contemplate the difficulties of completely rescheduling 150 students and four teachers. While this was being discussed, it was noted that the eighth graders were not yet scheduled. We investigated the possibility of adapting to the eighth grade, and the proposal was accepted. We were given a free hand in working with the eighth grade teachers. It is felt that this may give the Youngstown State University Teacher Corps Project an opportunity to prove its effectiveness in a very visible setting. It is our hope others in North High School will see the opportunities provided by the school-within-a-school concept and be open to implement some of these concepts. There are several drawbacks with the adoption of the eighth grade, however. The eighth grade is seen as a junior high school grade both by the principal and the 9-12 faculty. The principal would like to see the eighth grade removed from the building, while the 9-12 faculty have a somewhat negative view of the junior high students, faculty, and curriculum. It is with these facts in mind that the following model for a school-within-a-school is presented.

The Youngstown education redesign model as presented to the officials of the public schools calls for an experimental school organized wholly within the boundaries of the existing school. In short, the experimental program will be treated as a school-within-a-school. A team of five professionals, the team leader and a teacher from each of mathematics, science, English, and social studies, will be totally responsible for a group of 125 to 175 students. Assigned to this team will be the Teacher Corps interns and a cluster of paraprofessionals specifically trained to complement such an instructional arrangement. A differentiated staffing hierarchy is being planned with a lead (master) teacher charged with the responsibility of managing the team. This particular team will coordinate, guide and direct the entire learning experiences of each of the students assigned to the team. The majority of the student's learning will take place within the mini-school with additional instruction subcontracted to other faculty members outside the mini-team but still within the confines of the educational structure. For example, teachers from the art, music, home economics and shop departments will be assigned to the mini-school for single periods each day. However, when appropriate, the entire city becomes a classroom.

The development of the curriculum for the school-within-a-school will take into consideration the goals of the school, the individual students' goals, and the interests and abilities of both the students and teachers. It is envisioned that the primary mode of instruction will be small group involvement in nine week units each designed to provide directly or indirectly for instruction in each of the four major content areas. This instruction will be supplemented where necessary and/or desired by additional modules, experiences, tutoring and the like. For example, a nine week unit on pollution may be developed. The unit can provide direct instruction in ecology, chemistry, sociology, history, mathematics, communication, and others. Diagnostic/prescriptive procedures in language skills and mathematics will be used continuously to guide the student both within the unit and outside. Emphasis will be placed on individual and small group activities and a variety of modes and materials will be provided. Students will have input into the nature of the units developed and will have a choice of units to study.

The next steps in the implementation of the school-within-a-school are the consultations, negotiations, and planning with the eighth grade teachers. The sturcture of the school made such meetings impossible without prior approval of the ideas from the principal. It is anticipated that the school-within-a-school concept or some modification of it will be acceptable to the eighth grade teachers. Administrative transfer is a possible solution to the problem of a few unwilling teachers but that is neither desirable nor, in this case, probable. Part of spring semester will be spent in general planning, while the summer will be spent, within the context of college courses on teaching strategies and classroom organization alternatives, planning for specific implementation of the school-within-a-school in the eighth grade of North High School in the fall.

Evaluation

Since this program has not had a clearly defined sequence of steps leading to a well-defined goal, evaluation activities are at times even less well-defined. However, standard evaluation activities are being carried out and are planned.

Formative Evaluation

The preceding narrative indicates some of the formative evaluation activities which continuously monitor the procedures and effects of what is being done and suggest corrective measures to insure the success of the program. In addition to activities of the "What do I try now and that didn't work?" type, we have systematically collected data on participants' reactions to workshops and courses and have taken those reactions into consideration when planning further activities. These evaluation activities will continue throughout the program.

Similarily we expect to monitor student reactions to the Community Learning Experiences course and to the school-within-a-school. Should these affect the remainder of the faculty and students of North High School, this will determine further involvement and implementation of the school-within-a-school concept.

In addition to affective measures, both formal and informal, we will collect cognitive data relating to the success of the diagnostic/prescriptive learning center as it operates within the eighth grade and as it affects more universal use.

Summative Evaluation

In the final analysis we must answer the question of the effectiveness of the Youngstown State University Teacher Corps Project. A summary of the formative evaluation provides a partial answer to this question. In addition, we will collect data on the participants' feelings about its effectivess. These measures are, however, subject to a great degree. In addition we will have pretest posttest data on students in the diagnostic/prescriptive program, students taking the Community Learning Experiences course. Attitude measures will also be administered to North High School teachers at the conclusion of the program. Baseline data on attitudes toward such educational issues as interdisciplinary education, moral education, behaviorism and others have already been collected.

The following example from the Miles College Teacher Corps project in Alabama describes how a training procedure which has been developed and validated elsewhere is being adapted to a new situation. Enough information about the process and its previous uses must be given to inform potential sponsors and participants about its essential qualities and applications without going into elaborated detail or rigorous reporting of research findings.

THE APPLICATION OF MICROTEACHING TO A TEACHER CORPS INTERN TRAINING PROGRAM

by
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Background of Micro-Teaching

In less than fifteen years, Micro-teaching has become an established teacher training procedure for many colleges and universities. A 1969 national survey of student teaching programs by James A. Johnson of Northern Illinois University indicated that 44% of all teacher education programs were using some form of micro-teaching. Despite this widespread use it is still considered an innovation in teacher education. Presentations on micro-teaching have been made at national conventions of the American Educational Research Association, the American Association of Colleges for Teacher Education, the Association for Supervision and Curriculum Development, and the National Catholic Education Association. Micro-teaching follows the pattern of many other educational innovations; it has frequently been implemented without regard to existing research evidence which validates its appropriate use.

Micro-teaching is a teaching situation which is scaled down in terms of time and numbers of students. This usually means a 4-20 minute lesson involving from three to ten students. The lesson is scaled down to reduce some of the complexities of the teaching act, thus allowing the teacher to concentrate on selected aspects of teaching. One micro-teaching episode includes teaching a lesson and receiving immediate feedback on the teacher's effectiveness. This feedback may come from video-tape or audio-tape recordings, supervisors, pupils, colleagues, or from the teacher's self-perceptions. Some of the variables which can be controlled in micro-teaching are lesson length, number of times the lesson is retaught, the amount and kind of supervision, the use of video-tape or audio-tape recordings, and number and types of pupils. Micro-teaching is not synonymous with simulated teaching. Rather, the teacher is a real teacher, the students are real students, and learning does occur in the short lessons. Some reports of micro-teaching programs describe the students as peers, that is, fellow student teachers. This means that the peers are acting as they think secondary or elementary school students would behave. James Cooper points out the limitation of this arrangement: "Even if they are not role playing but behaving naturally, they are still not part of the population the student teachers are preparing to teach."

Even though it is a fairly simple, straightforward idea, micro-teaching was late arriving on the education scene. It developed at Stanford University in 1963 from an attempt to find a new, more effective initial training of preintern teachers. The original efforts had employed a demonstration lesson, in which the interns were asked to teach a game to a group of four students who were playing stereotyped roles: "Slowpoke," "Couldn't care less," "Eager," and "Know it all." The situation was intentionally difficult to to provide the interns with an experience designed to impress upon them the need to learn instructional techniques. From this extremely artificial situation developed the concept of micro-teaching. Instead of having the students role play, they were asked to behave normally and interns were directed to prepare a short lesson of their own choosing in their subject matter area. Although this procedure was judged by the Stanford Secondary Education Project staff to be an improvement over the demonstration lesson, it still seemed to lack direction. What was missing was the teaching techniques dimension. In the summer of 1963, Horace Aubertine developed the technical teaching skill "How to Begin a Lesson," or "Establishing Set," as part of a research study. The interns were instructed to use this skill in their micro-teaching lessons. As a result of this experience, the practice of focusing on one skill at a time evolved and proved to be quite successful. It was decided that for future micro-teaching clinics, additional teaching skills would be developed.

These teaching skills refer to specific teacher behaviors designed to influence learners in a predetermined direction. This required that both teacher and learner behaviors be operationally defined and that the desired interactions be derived from a theoretical rationale. The teaching skills approach is based on the assumption that by breaking down the complex teaching act into more easily learned skills, teachers can gradually acquire a repertoire of teaching skills to use in the actual classroom. By building a repertoire of skills, the teachers are increasing their flexibility and versatility. They have more teaching techniques at their command in order to vary questions, reinforcement or presentation styles. Thus they are able to adapt teaching styles to suit the students' needs within the objectives of the lesson. There is research evidence which indicates that the flexible teacher, the one who can adapt teaching methods, is more effective in producing positive student performance and attitude than a teacher who lacks this versatility.

The most widespread use of micro-teaching, therefore, has been to help teachers develop a broader repertoire of teaching skills. Since 1963, training programs have been developed for over 20 different general teaching skills applicable to elementary and secondary teachers across most subject matter areas. Most of these skills were identified through an informal task analysis of teachers in their classrooms. Once the skill was identified, its behavioral components were isolated and training protocols were developed using a micro-teaching format.

Uses in Teaching/Learning Situations

Micro-teaching has been used in inservice situations and in the preservice training of student teachers or interns. The usual format at the pre-service level has been for the trainees first to receive instruction in the particular skill to be practiced. This instruction may be written, oral, video-taped, or filmed. A number of institutions use a combination of these methods. After the skill is explained, the trainees often will see a video-taped or filmed model of a teacher demonstrating that skill. This model will be discussed until the trainees are clear as to the skill they will be practicing in micro-teaching. Research by Ward indicates that the skills most often used have been: Asking Questions, Using Reinforcement Techniques, Establishing Set, Using Examples, and Varying the Stimulus. A trainee then teaches a short lesson (usually 5-10 minutes) in his/her own subject field and of his/her own choosing to a small number of students, while trying to master the skills. Whenever possible, the lesson is video-taped or audio-taped to allow the trainee to observe or hear the playback. There is usually a supervisor present who helps the trainee analyze the strengths and weaknesses of the lesson and discuss how the lesson might be improved. Frequently colleagues or other trainees will observe one another teaching and offer their comments on the lesson. A number of programs also utilize student feedback to help the teacher in a critique of the lesson. One hundred twenty-five institutions use the video-tape recorder in micro-teaching for secondary school teachers. Although video-tape equipment is not necessary for micro-teaching, it does add tremendous power to the feedback dimension. After the critique, the trainee usually has a break period in which to replan the lesson in order to incorporate the suggestions from the critique. Although there is no solid research evidence regarding the optimal length of time for planning, there is some evidence that 15 minutes or less is not long enough. Once the teacher has replanned the lesson, she/he teaches it again to a different group of students in order to get initial responses from the students. Ninety-nine institutions out of 136 replying to Ward's survey questionnaire indicated that they either always or sometimes used the teach-reteach cycle. After the "reteach," the same sources of feedback are used again in the critique. This cycle can be repeated as often as desired with the trainee planning new content while continuing to practice the same skill. Most of the institutions indicated that they used peers instead of actual pupils. The reason for using peers is the difficulty encountered in obtaining actual pupils. Pupils are in school all day and therefore usually are available for micro-teaching only in the evening. This is especially true if the micro-teaching is conducted at a college or university rather than at the public schools, and the university is by far the most common locale for micro-teaching. If the program operates during the summer, actual students can be paid for their services but many institutions find the cost restrictive. As a consequence, the utilization of peers as students, at least at the secondary level, far exceeds the use of actual students for the micro-teaching process at the pre-service level.

Another format is to use a 20-25 minute lesson, followed by a 30-40 minute critique. This training protocol was used at Stanford, following three weeks of the teaching-critique/reteach-critique format. There were several reasons for changing the pattern. By lengthening the time of the lesson, the trainee was able to start planning and teaching lessons which were closer in length to the lessons she/he would teach in the regular classroom. This longer format ran for three weeks, during which time the trainees were divided into teams of three or four. These teams then planned a three-week unit to teach to a single group of students. The team members selected the objectives, organized the learning experiences, and decided how they would evaluate the lessons. This process gave them experience in team planning, team teaching, and the construction of a teaching unit. It also gave them an opportunity to work with a single group of students over an extended period of time. Although the trainees were working on particular skills during this three week period, the major concern during the critique sessions was less with isolated skills than with appropriateness of objectives and techniques, organization and student involvement. No formal evaluation was made to compare the effectiveness of the two micro-teaching formats, but the general feeling of the trainees and the supervisors at Stanford was that the shorter lesson was more effective for some skills, such as nonverbal communication, while the longer lesson was more effective for skills such as establishing set and reaching closure.

Miles College Teacher Corps Project

The most important use made of micro-teaching and video-tape is in the area of evaluation and research. A major emphasis of the Miles project is to find answers to the following questions:

(1) How effective is the instructional staff?
(2) How effective is the inservice program?
(3) Have teachers and interns changed their teaching behavior as a result of formal courses?
(4) Have teachers and interns changed their behavior as a result of inservice workshops?
(5) Does the teacher's use or lack of use of a particular skill have any relationship to pupil progress?

Micro-teaching and video-taping are factors in the process for finding answers to these questions. For example, those teacher competencies (skills, knowledge, attitude) which are deemed to be most important for our teachers to have and use will be identified. Later, interns and teachers prepare lessons designed to utilize and highlight the skill, knowledge or attitude. A micro-teaching session is then conducted. The session is video-taped so that a later more detailed analysis can be made of the lesson. The use of the video-tape for a later and thorough analysis is especially important since many of the interns and teachers will not be skilled (trained) observers. The detailed analysis will, in some cases, include coding on an observation sheet the behaviors that were to be demonstrated and determining if the skills were (a) demonstrated in an acceptable manner and (b) demonstrated more often than before the instructor taught the skills. To make this determination, a video-tape of the micro-teaching after the skills were taught is compared to one of the intern or teacher teaching the same or a similar lesson before the skill was taught.

The results of these analyses will be the basis of the instructional program evaluation. If the interns/teachers demonstrate significant gains in appropriate use of the skills, then the instructional program has been successful. If not, a review of the teaching learning process would be appropriate. The instructional staff or the competency itself can be the focus of the review.

Micro-teaching and video-taping will also be used to conduct educational research. An extension of the evaluation process will be utilized to conduct research on teaching and learning. For example, interns/teachers will be given a lesson to teach on a specific topic. Pupils will be the ultimate subjects. A competency will be identified for them to master. The instructional staff will teach the competency to the interns/teachers. After the instructional staff has taught the skills and provided theory, rationale, and experiences, the learners will then have several micro-teaching sessions demonstrating the skills with pupils. These sessions will be video-taped and critiqued by peers in an attempt to further improve the skills of the individuals doing the micro-teaching. However, in addition to the normal critiquing and discussion that takes place after these sessions, an examination will be made to determine if the quality and/or frequency of the behavior has changed significantly. Pupils videotaped when the micro-teaching takes place will also be observed. Where there are significant differences in pre/post micro-teaching behavior of the interns/teachers, we might have reason to believe that instruction is related to this change. A more important finding, however, will be that related to pupil and teacher behavior.

If various types of positive reinforcement comprised the competency that was taught and demonstrated, and teacher A demonstrates the skills whereas teacher B does not, then the students of A and B would be observed to see if A's students exhibited more desirable behaviors (e.g., more evidence of cooperation and interest) than those of teacher B. If teacher A's students do, in fact, exhibit more desirable behavior and if this holds true for situations tightly controlled (e.g., using a pre/post design and considering other teacher/pupil variables) there would be encouragement to initiate more sophisticated experimental designs to relate teacher behavior to desirable student behavior.

Expected Outcomes

Expectations of Using Micro-teaching and the Videotaping.

With the use of video-taping and micro-teaching, we expect the following outcomes. Interns will be able to:

1. teach specific competencies to a small group.
2. exemplify their own teaching styles.
3. use different strategies to meet identifiable needs.
4. critique a lesson using the Flanders Interaction Analysis categories.
5. improve specific teaching performance after a lesson has been analyzed.
6. perform a self analysis of teaching performance.
7. analyze effective and ineffective aspects of their own teaching style.
8. improve teaching skills in a teaching/learning situation.
9. duplicate an effective teaching style after observing the video-tape of the style.
10. improve teaching through self-assessment using video-tapes.
11. accept constructive criticism.
12. perform at a higher than average level of teacher competence based on accepted norms.

13. predict consequences of performance using a specific style in classroom situations.
14. accept peer appraisal of effective and ineffective aspects of their micro-teaching lessons.
15. accept the value of micro-teaching.

Problems

1. At the beginning we do not expect teachers and interns to be able to analyze effective styles, analyze ineffective styles, and accept constructive criticism.
2. Professors may not want to delegate responsibility to another person to conduct evaluations and teach competency skills.
3. At the beginning we expect some distraction of children by videotaping.

Conclusion

Micro-teaching is a validated method for instructing experienced teachers and interns in teaching/learning situations. It breaks down the complexities of teaching into more easily learned skills so that the teacher can gradually acquire a repertoire of skills and increase flexibility and versatility. Research has provided evidence that the flexible teacher, the one who can adapt a variety of teaching methods, is more effective in producing positive student performance and attitude than a teacher who lacks this versatility. Micro-teaching offers much promise for the inexperienced teacher and the experienced teacher, but it does not cure all the problems of teacher education. There is much more to be learned about the process. Users of micro-teaching techniques should add to the existing knowledge new findings which can improve its effectiveness.

DEVELOPMENT

The word **development** is usually used along with the word **research**, as for example in the Centers for Educational Research and Development (R and D) located at a number of universities. In the past decade the federally funded Educational Laboratories in several regions of the country have emphasized the development side of R and D. Much of the engineering function in industry is concerned with development, that is, developing useful (or marketable) products using knowledge derived from research.

There is a continuum which includes invention, research, development, dissemination and diffusion. The distinctions between these are not always clear nor are they always completed in strict sequence. For example, once a product (or process) has been developed or adapted from research, additional research may be conducted using the product as one of the variables.

It is often difficult to distinguish an invention from a development. It can be argued that Orville and Wilbur Wright developed rather than invented an aeroplane. They used the results of research by many others in their designs and the basic principles of flight had been discovered by others.

An example of educational development may help illustrate the process. In the early 1960s a series of experiments were performed at Stanford which resulted in a teacher training process called "micro-teaching." Beginning teachers (interns) practiced teaching brief lessons (10-15 minutes) with specific objectives to small groups of students (often as few as five). The teachers received intensive feedback on the teaching from the students, from supervisors, from video-tapes. Several studies produced convincing evidence that the training procedure did indeed produce positive gains in skills of teaching. (A recent adaptation by Miles College is described in the preceding section.)

These successful experiments used a number of principles from previous research and theories of learning, e.g., Knowledge of Results (KOR or "feedback"), "cognitive dissonance," "reinforcement," "set induction," "closure," and others. They also controlled as many variables as possible within the experimental conditions and environments where they were conducted. They were soon adapted to less controlled (or more realistic) conditions in actual school classrooms and other teacher training institutions.

In the mid-sixties, an adaptation of the microteaching procedure was incorporated as the practice component of "mini-courses" developed by the Far West Laboratory for Educational Research and Development. The mini-courses were self-instructional programs to help teachers learn explicit techniques (such as how to ask better questions) using **modeling** (watching video-tapes or films of positive examples), **cognitive instruction** (reading and thinking about the concepts and skills being learned), **practice** (teaching a lesson to a small group of students), **feedback** (watching a video-tape of the practice lesson), **reteaching** (doing the lesson again with a different group of students.) A current use of mini-courses by Indiana University is described in another case study.

The developers of the first mini-courses listed four essential aspects of the development process:

- Stating specific performance objectives for the new product (or process).

- Using available research knowledge as a source of concepts and materials for the new product.
- Carrying out rigorous evaluations of the product's effectiveness in the real world.
- Using the results of the evaluation to improve the product.

They also commented on the relative cost of the different stages of development. About a fourth of their costs were incurred in the first two steps above, more than half of the cost went into the third.

Projects within a school district (such as Teacher Corps projects) are not likely to mount a developmental effort of the magnitude represented by the micro-teaching or mini-course projects. However, the basic procedures are the same for small projects with limited goals as they are for large ones. The basic steps are:

(1) Identify and describe the problem clearly.
(2) Select a body of research findings or validated results from previous development work which offer reasonable solutions to the problem.
(3) Adapt the products or processes of prior R and D to the specific situation.
(4) Pilot test the adapted materials or procedures with a few people.
(5) Revise, based on the pilot test, and field test in the target schools.
(6) Revise, based on the field test, and report the results to interested audiences.

Note that there is need for skill in: documentation, evaluation, stating objectives clearly, writing clearly, working with people under experimental conditions, and making use of negative findings along with the positive. These skills are required at all stages of the development process. There are other general requirements for project staff members. At least one member of the project will need skills of diplomacy in working with several diverse institutions or agencies. It is typical to be involved with a school district, a university or college, a teacher organization, a state department of education, a federal agency, a community group, and probably some others.

Someone in the project will have to take responsibility for evaluation. This includes "formative" evaluation of the various states of the development process along with "summative" evaluation of the products or outcomes of the completed project. Developers (those who are intimately involved in designing, adapting, or implementing something different in an educational setting) are notoriously reluctant to evaluate their own efforts objectively. We tend to apply only the subjective or "Gee Whiz" evaluation, e.g., "Gee Whiz, those teachers are sure enthusiastic about our new program-one of them told me it is really great." Objective evaluation implies valid and reliable measures, explicit criteria, careful analysis of data, and also some sophistication in sampling procedures, statistical design, and interpretation of findings.

Management of the development process requires some special talents. Administration usually requires attending to the details and logistics of doing things as they have been done before. Development work, by its very nature, demands doing things as they have not been done before. This leads to conflicts (especially working in schools which are essentially traditional). Skillful managers are needed as directors of development projects.

Obstacles in the path of development activities are inevitable. As the creative instincts of talented developers become discouraged, someone in the project must provide the motivation and enthusiasm to overcome setbacks. "Damn the torpedoes, full speed ahead," may be an apt phrase.

Depending on the nature of the project, development work often requires additional skills in writing, using media, reviewing research, communicating with colleagues in related projects, handling public relations and political pressure. Obstacles and pressures are first encountered at the educational level (for example, in the school or university), then at the social level (for example, testing a sex education program in health classes without community approval). If projects are big enough, ambitious enough, or successful enough, they will encounter economic pressures (competing for funds and personnel, or impacting the local school budget) or even political pressures (altering the work load of teachers without the support of their organization, for example).

When projects have a limited time to develop a new program, product, or procedure, then there must be a workable plan for the division of work among the individuals who are involved. One or two individuals might work on a project for ten or fifteen years and take it through all the stages of research and development, including a convincing demonstration of effectiveness under operational conditions. At the end of this time a publisher might be interested in obtaining the rights to deliver the resulting product to the rest of the world, i.e., dissemination and diffusion.

If a project has only two years of life expectancy, then what it took two people ten years to do should require at least ten people. Compressing the activities of systematic development is not that simple. Some tasks require a length of time to accomplish no matter how many people are working on them, for example, measuring pupil gains over time with a new instructional program. Another difficulty occurs when we try to divide up the tasks among ten people. The two people who worked ten years (let's call them Orville and Wilbur) did a number of different things. They had to conceive the idea of the desired final product, create parts of it, such as printed material, films, tapes. They also had to experiment with parts of the product and the procedure. They might teach several groups using various adaptations, obtain feedback from participants and measure effects on learning. In addition, they had to manage the day to day operation, allocate resources, direct human energies, and interact with participating agencies. In projects with more than two members, someone will probably have to "put out fires," e.g., calm raging staff members or irate clients.

In a large scale development effort there can be full time specialists in media, printing, management, etc. Teams can be assigned to each component of a project. In a smaller project, individuals will have to perform many diverse functions and fill several roles. For example, in a Teacher Corps project, a team leader may, in addition to taking responsibility for the in-school experience of interns, write materials for training and inservice teachers, coordinate the inservice efforts of persons from a school district and a university. A program development specialist may serve as project co-director and perform a variety of management functions. A university professor may survey available inservice training materials, conduct field tests of experimental inservice procedures, help to devise a new curriculum in addition to leading workshops, writing television scripts, and coping with the bureaucracies of a school district, a university, and a state department of education.

There are a number of tasks that can be subcontracted if there are funds allocated to do so. Printing, evaluation, editing, and film making are often handled in this way. Federally funded projects need to check the regulations on printing through the government printing office. Subcontracting tends to be expensive.

Because of the complexity of full scale development work it is probably best left to organizations which are geared to perform these kinds of tasks. Demonstration projects such as those reported in this book do not usually develop their own materials (e.g., books, film, packaged instruction) but they redevelop or modify procedures to fit their situation. Teacher Corps projects are not expected to be product developers, however, successful demonstrations nearly always require adaptations which make use of the developer's skills.

Figure 5

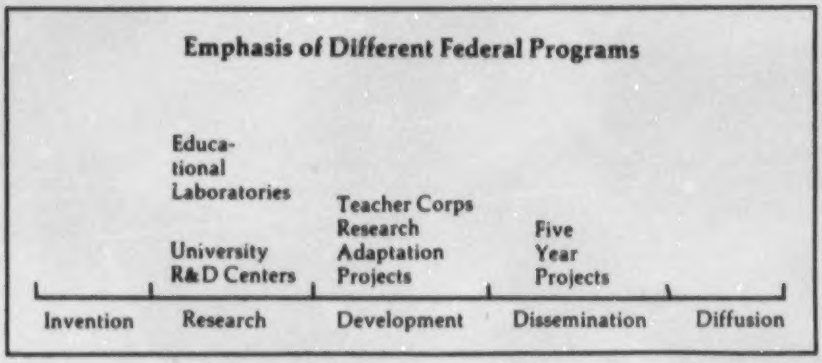
Emphasis of Different Federal Programs

Figure 5 indicates approximate placement of emphasis among several types of projects along the R and D Continuum. The university centers and educational laboratories are supported by the National Institute for Education (NIE). Teacher Corps is a separate operation of the U.S. Office of Education.

The application of research and the adaptation of product developments in education are activities which have not been intensively studied and reported. One reason is that these activities are very costly. As a rule of thumb, the cost increases by a factor of ten for each step as one moves from left to right along the continuum.

In the pages which follow, examples or case studies will be presented which illustrate aspects of educational development as they have been experienced by Teacher Corps projects in the Research Adaptation Cluster.

This case study illustrates how a project in the inner city is making use of the skills of development to adapt an educational innovation (using children as tutors or teachers for younger children) to a specific situation.

CHILDREN LEARNING BY TEACHING: A TEACHER CORPS DEMONSTRATION PROJECT

by

Vivian C. Jackson and Alan Gartner*

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Introduction

While one can isolate, for the purpose of analysis (or writing), one or another of the stages of program activity which form the conceptual outline of this volume — and here we focus upon "develop," in fact, at any given time one must be concerned with each of the stages — Describe, Develop, Document, Disseminate and Diffuse. We can illustrate this best by describing the Community School District 5, New York City Queens College, City University of New York Project.

Community School District 5 includes most of Central Harlem. In keeping with most outside impressions, it is characterized by the signs of urban decay and by schools in which too few children learn. Contrary to most impressions, there are loci of stability and an abundance of civic and social concern. Much of this focuses upon children in the schools. P.S. 133 is a fairly small (400 pupil) elementary school, K-5, located at Fifth Avenue and 132 Street.

Unlike most Teacher Corps projects, this program had in the New Careers Training Laboratory an entity which was both a part of the Institution of Higher Education (IHE), as would be a college department, and which has a separate history and pattern of operation. As an administrative office of the Division of Education at Queens College, this project's director had been in charge of the paraprofessional teacher education program, and the project's program development specialist was a professor in the Department of Elementary and Early Childhood Education, and a faculty member in the paraprofessional teacher education program. As the paraprofessional teacher education program was initiated through the office of the dean of teacher education, they had considerable working experience with him and he had a longstanding commitment to field-based in-service education.

The New Careers Training Laboratory, Queens College, came to work in Community School District 5, and at P.S. 133, with considerable experience. In previous years, it had conducted training programs for paraprofessionals in the district, and had done workshops for parents at the school. Several project staff members (including the director, site coordinator, community coordinator, team leader, and a secretary) were residents of the district, each living within five blocks of the school. Although they did not have children attending it, it was their neighborhood school.

The body of research, which according to the project's "thrust," it sought to adapt, related to children learning by teaching (Gartner, Kohler, and Riessman, 1971; Allen, 1976; Newmark, 1976) and the changes in personnel roles (and institutional arrangements) necessary to implement such a program.

An important factor in both the relationship between Community District 5 and the New Careers Training Laboratory and in the focus upon the particular intervention of children learning by teaching was the prior working relationships between the District's Superintendent and his previous involvement with a learning by teaching program. This provided a critical point of entry. (Of course, this was only a base point; indeed, soon after the project began, the Superintendent resigned.)

Before and After the Develop Stage

While we view the project as being in the "Develop" stage, this is not to suggest that we have completed the prior "Describe" activities. And, on the other hand, we have begun, in several ways (including this article), activities which are part of "Disseminate" and "Diffuse"; "Documentation" was begun at the initiation of the project and continues.

Initial activities, during the proposal development period, the summer, and the beginning of the school year, were part of the "Describe" stage. Both the working style of the New Careers Training Laboratory and the needs of P.S. 133 dictated that this not be done in the abstract but in the school itself. The base, then, for the interns' activities, and those of the project as a whole, were at P.S. 133. At 133 there was both "doing" to be done, as well as "learning by doing". The facts of the target site needs were not hard to ascertain. Nor was it difficult to identify the substance of the research base. What was far more complicated was to go beyond these target site "facts" to the substance behind them, and to go beyond the research "substance" to the meaning and processes behind it. Among the complexities, for example, is the fact that there is not a single set of target site needs; rather, there are school needs, faculty and staff needs, community needs, and children needs. While overlapping, they are not entirely congruent; indeed, to some extent they are different if not antagonistic.

The process of assessing these needs thus continues beyond the "Describe" into the "Develop" stage. It is not only that needs change over time; also, they come to be understood at different levels and differently in new contexts.

Explication and development of the research is not a time delimited activity. This is especially the case as the bulk of the data concerning learning by teaching focuses upon the children's activity. This is especially the case as the bulk of the data concerning learning by teaching focuses upon the children's activities, with less attention to the roles of the adults or the effect upon the institution. As most programs have not been a central part of a school's learning activities but have been operated outside of or after school or have been otherwise tangential, an essential part of our work has been building our own knowledge base, as well as extrapolating from present (and previous) programs. Here, we have been especially helped by the description of one of the few whole school projects (Newmark, 1976), as well the project's own investigations (Lipsky, 1977). And as we implement the program, we are building new data as to staff roles, appropriate (re) training, and institutional (re)arrangements.

To shift now from the "Describe" activities which continue into the "Develop" stage to the "Disseminate" and Diffusion" activities which are beginning as we "Develop," here, too, there is overlap. Key here is the Teacher Corps conceptualization of the project as a Demonstration. For us this means internalizing the needs/interests of those to whom the products of the Demonstration are addressed. Were we to do the project without such a focus, we would document its activities both as a record of what we did and as part of our accountability to an internal audience — the people of the LEA and the IHE. But, given the Demonstration focus, as well, we have from the beginning of the project been concerned with looking at it in terms of informing others, both to report upon what we have done and to enable them to adopt/adapt it to their needs and circumstances. Thus, special responsibility to look at the project with that particular set of "eyes" was established at the very outset.[1]

The Develop Stage

The Beginning

During the proposal development period, we believed that it would be possible to begin implementing the full learning by teaching program early in the fall. We were wrong. Not only were there Teacher Corps strictures as to planning processes and structural arrangements, but there were serious substantive constraints. While project staff knew the research base (indeed, some had developed it) and knew the school and community; while many of the staff members had worked together on previous activities and in the proposal development process; and while all were anxious to move ahead rapidly, the process of planning program implementing has taken a full half year.

Not planning on paper, or planning in the abstract, but planning in situ. In fact, it is not only planning which has taken place in this period but also preparing and what may be called proto-implementation.

For us, the proposal development period provided little of a headstart for the doing of the project. The experience, jaded perhaps, of the persons at both the IHE and the LEA was that proposal development was for the purpose of proposal development; that is, its goal was to develop a proposal, which was fundable. To go beyond that goal, that is to begin actual work would be premature, indeed foolhardy. The parties, particularly those at the school, had been through too many planning exercises that had not come to fruition to invest in another prior to its being a reality.

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[1] As a matter of administrative organization, the various recording and assessing activities have been assigned to different staff members. Overall documentation is the responsibility of the project director; process evaluation data, information concerning the effects of the program upon children, the effects upon teachers and the school, and analyses of the processes of learning by teaching are the responsibility of the evaluation coordinator; and information for the purpose of dissemination and diffusion, the responsibility of the associate director.

Thus, at the start of the project, while there was the background of earlier relationships, including the proposal development process, there had not been real program development work beyond the proposal. And while project staff (including the school's principal) and interns were available for a part of the summer,[2] full-blown program development activities had to await the opening of school.(This is not to say that starting projects in the summer is not desirable or even essential. It is both of these, we believe. It is to say, that at least for a project such as ours, involved in the very fabric of the school's life, full-scale program development requires in-depth knowledge of the school by all and involvement of all school staff in planning; neither was possible until after the school year began.)

As school began, so, too, did seven simultaneous project activities — course work, intern community activities, indepth needs assessments, research base development and refinement, involvement in school activities, staff team building, and planning for program implementation. This multitude of activities reflects the varied goals of Teacher Corps projects. At the least, there are goals in terms of school staff development, intern education, knowledge base extension, school-community relationships, IHE impact, and, as one is operating in the real world with real children, their benefit. In the abstract, these multiple goals are not necessarily incompatible. In practice, at least some of the time (and/or to some extent) they are at tension if not at odds.

Interns: Why Are They There?

A point to see this tension relates to the role of the interns. At one level, they are students in a college degree program concerned with preparing to be effective teachers of low-income children. However, they are not simply that. For this is not merely a field-based teacher preparation program. It is a project with its own goals— re. the public school, its staff, children, and community; and re. the further development of the learning by teaching concept, particularly as regards low-income children, and especially concerning roles and activities of staff and consequent (re)training. And the interns play important roles, partly because they are official members of the project, partly because they provide an important human resource in its implementation, and partly because working in it is the "dues" they pay for the learning opportunities in the school. Of course, this tension is neither unique in the project to the role of the interns (there is similar tension, for example, between the goal of affecting the IHE and affecting the school) nor in teacher preparation programs at large, or for that matter in the preparation of human services professionals in general (Gartner, 1976).

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[2] Although perhaps unique, the project's experience with the Corpsmember Training Institute (CMTI) warrants note. At the project, we decided to engage the interns right off with the community, the school, and the 'research base.' During July 1976, the interns participated in a series of school and community-based activities plus a seminar on the theory of learning by teaching. As a result of both of these experiences and their own enthusiasm, a considerable momentum was built up (only slightly slowed by the absence of project staff at the national conference). The CMTI broke this momentum, and as the interns reported little benefit from it in its own terms, this has led us to question the value of the CMTI. Perhaps the assessment made of the CMTI by the interns was a function of their involvement in the project, and as such, the CMTI became irrelevant. This, then raises the question of project phasing — for example, to what extent, if any, should interns become involved in projects prior to the CMTI? And, there is the larger question of the relationship of the interns to the project activities, a topic to be discussed in the text.

We have sought to deal with this tension (if not resolve it, for it is real and not finally resolvable), first of all by recognizing it. Indeed, as one of the goals of the program for the preparation of the interns as teachers is to make them self-conscious about issues in human services practice, this has been a topic of attention in the college program. But attention is not sufficient for as with a true dilemma, where there are two equally balanced alternatives, one cannot compromise by splitting the difference between the options. Rather, as there is merit in each side — that is that the interns, if they are to become effective teachers, have educational needs beyond those directly appropriate to project implementation, and that there are needs for them that are project implementation specific — we have opted to try to meet both sets of needs. Thus, they are learners about teaching low-income children; they are doers of learning by teaching; and they are doers of other activities in the school and community. Some of this is what can be called learning by learning, some learning by (and from) doing, and some simply doing. Indeed, the reality of this has been one of the learnings of project staff.

Working in the School

As we have noted, the project has from the very beginning been based in the school. Its office is there, all of the college courses are delivered there, staff and interns spend most of their work time there. The initial work at the school was designed to serve multiple purposes and can be variously viewed. At one level, it was designed to provide learning opportunities for the interns. At another level, it was intended as a way for project staff to get to know the school — its people, governing rules, curriculum operations, ethos, character, tone, underlying beliefs. We needed to know this not only to do the project but to do it in a way such that the project activities would not be an appendage to the school but become and be a part of its very fabric. At yet another level, it was to be a place to plan the program and as part of that planning to begin some doing. In fact, most activities had multiple purposes. For example,

- The Exceptional Child Coordinator took on a key role with the school's team concerned with special children. This rendered a needed service to the school, gave her an opportunity to learn about how a piece of the school operated in practice, provided material for the interns' learning, engaged staff and interns with classroom teachers, and gave access to children with whom the interns were able to work including establishing some individual learning by teaching activities.
- The Community Coordinator, at the request of the principal, worked with the school's PTA to invigorate it. Again, this rendered a needed service, was responsible to a request of the principal (especially impressive as the turnout at the first meeting was the largest in the school's history), provided an opportunity for interns to work with parents and in the community and to learn therefrom, showed that the

project was willing to do hard work, offered an opportunity (in the course of the work) to tell about the project.

- The interns have organized a number of activities which have served multiple purpose. Two interns have organized a basketball program which provides a desirable service to children (budget cutbacks had eliminated a physical education specialist), classroom teachers are especially pleased as they feel ill-equipped to take the children to the gym and the activity gives children a chance to work off energy, it gives the interns direct contact with the children, and they have been able to try out some learning by teaching activities with children about basketball. Another intern teaches an after school class in Spanish, one of the three languages she speaks, to a group of teachers, paraprofessionals, parents, and children. Again, this is a desired service, it involves the project with school staff and community, it gives the intern a chance to do some teaching, and allows her to try out learning by teaching activities in yet another setting. The fourth intern works with children on a series of projects concerning Black History, a particular interest of his. It is an activity highly regarded by the school, it gives him opportunities to work with children and teachers, and it provides a service which wins acclaim for the school in the community.

As these examples suggest, the process of program developing has been neither direct nor simple. Activities such as those described, and many others, were carried out during the first four months. Following the Christmas vacation, project staff felt it was time to move toward more direct implementation of the learning by teaching design. While the activities described above were underway, a part-time staff member (a graduate student doing a field internship) had been collecting data about other learning by teaching programs; and during the January recess in the college calendar, interns and staff visited other local learning by teaching projects.

In late January, staff and interns spent a weekend putting together the plans for the implementation of the learning by teaching program. They know the school, not in the abstract but having worked in it, being a part of it. They knew learning by teaching, not just from reports or even visits but by testing these against their knowledge of P.S. 133. And they knew each other. None of this is to suggest that things came easily as the details of the program were worked through; only that the base upon which it was built was real, practice-tested. Perhaps, the proof of the value of the months of development was that when following the weekend, school staff were invited to a meeting to hear about the plans, all but two came. And, at the meeting, when teacher volunteers were enlisted to have the program begin in their class, twice as many volunteered as had been estimated. (N.B. We have adjusted to accomodate to this error.)

We have now begun the program. The following chart, designed to show interns' activities illustrates the design as of the spring, 1977. We expect in the fall to expand the program to include all classes at P.S. 133.

Each day, one of the interns works with a group of children who prepare a school news report. It involves the children collecting news, national and local (reading the newspaper, watching television, interviewing faculty and other

	Monday	Tuesday	Wednesday	Thursday
8:30—9:35	School Reporters	School Reporters	School Reporters	School Reporters
9:40—10:45	Intern Training and Feedback	Language Arts Practicum	Tutoring—Feedback	Diagnostic and Prescriptive Teaching Practicum
10:30—11:15	↓	↓	Tutoring—Feedback	↓
11:20—12:10		Tutoring—Feedback	Tutoring—Feedback	Tutoring—Feedback
12:20—1:10	L	U	N	C H
1:15—2:05	Tutoring—Training	Tutoring Feedback	Learning by Teaching Practicum	Tutoring—Feedback
2:05—2:55	Staff Meeting	Tutoring—Feedback	↓	Tutoring—Feedback
3:00—4:00	↓	Basketball Spanish		Diagnostic and Prescriptive Teaching Course
4:00—5:00				↓

students), writing the stories, and then broadcasting to the school through the P.A. system. Older students help youngers in doing the program. This was one of the activities begun during the fall which has been continued because of the value to the children and the school.

The Monday schedule includes on-going intern training concerning learning by teaching and as each intern is assigned to a group of tutor-tutee dyads, this period allows time for them to share their experiences. Monday after lunch the interns work with "their tutors," training them, hearing their reactions to the tutoring sessions. (These and the other feedback sessions are critical as we believe that the tutors learn not only from preparing and doing the tutoring but from having a chance to engage in feedback about the tutoring, to reflect about it, to focus upon learning — the tutee's and their own.)

Following the news program, on Tuesday morning interns meet with the Program Development Specialist, a college faculty member, in a practicum on language arts. The 11:20 to 12:10 session (the time divisions are the school's structure) is one of the times when tutoring takes place; tutors work with their tutees and interns are available to help, if necessary. At the end of each period, interns hold brief feedback sessions with the tutors. Tuesday afternoon concludes with the previously mentioned intern-conducted basketball and Spanish activities which the interns had initiated in the fall. While from the program's point of view, they have served their purpose as a "door opener," their value to the children and the school (the basketball involves only children while the Spanish course is attended by teachers, paraprofessionals, parents, and children), as well as the opportunities they provide to the interns to do something of their own, has led us to continue them.

On Wednesday afternoon, the Learning by Teaching Practicum, a college course, is attended by the interns and all of the teachers whose children are involved in the program as tutors or tutees.

On Thursday, another college faculty member, who spends the full day at the school, does a practicum on diagnostic and prescriptive teaching with the interns in the morning, a class on the same subject in the afternoon (for interns, teachers and paraprofessionals), and between the two works with teachers on an in-service training basis.

Friday is the interns' day for other learning activities, organized around a series of independent study activities (for college credit) supervised by the Program Development Specialist. This term, two of them are doing internships — one with a principal at another school learning about the management of open classroom programs and the other with a supervisor of bilingual education; another is doing library research; and the fourth is working on a curriculum unit on Black History. This design is part of the effort to attend to the tension discussed earlier as to the interns as teachers-in-training and as workers in the project.

In addition to the activities on the chart, the interns staff (on a rotating basis) a twice weekly evening school-community program at P.S. 133.

Summary

What was Done?

A program for children learning by teaching was developed, and is being implemented.

How was it Done?

Teacher Corps project people began with a series of activities designed to learn about the school, to become familiar with staff and children, to build within the project a sense of teamwork. As school people became familiar with Teacher Corps personnel, with the goals and nature of the project, and as project people gained credibility in the school as a result of the activities they undertook, early proto-learning by teaching efforts were undertaken. As these succeeded, additional efforts were undertaken. Finally, a full program was developed, reviewed with school staff, and began to be implemented.

Results

As the implementation phase has just begun, there are no results of it. The program development process seems to have been carried through successfully, if with travail and, perhaps a bit slowly.

Problems Encountered

First, we underestimated in our initial design the complexity of implementing and the time necessary. Second, we were not fully aware of the patterns of school life, the demands upon the staff, which, regardless of their interest in the program, served to distract from it. Third, we failed to realize the extent of the gap in our understanding of learning by teaching as a design and the actuality of putting it into practice. Fourth, although many of the project staff had worked together previously, we were not aware of the extent to which a new project in a new setting and the addition of new staff would mean the need for new team building.

Strategies

A key strategy was pacing, the willingness, once we understood the problem, to use time, to let things move by stages, to build step by step. Second, we were aware of the need to win school people, first on their own terms and then in terms of the project. Third, we undertook activities which served multiple purposes: getting to know the school, winning over school people, serving children, providing learning opportunities for interns, building a base for learning by teaching activities. Fourth, great care was taken to engage the principal, to assure that he was involved step by step, to assure that he felt a sense of ownership of the project; and this is being carried over to teachers.

Lessons Learned

In a sense, these are the obverse of the problems encountered—the need for time and phasing, the realities and demands of every day school life, the distance between idea and practice.

Generalizable Principles

First, school people are receptive to new ideas. This despite all the pressures upon them, all the history of promises unfulfilled, all the impediments of structure and custom.

Second, an outside force can be the catalyst for change. But it must earn its way into the system; while the value of the idea is important, that is not enough to win entry. It is earned by being in the school, a willingness to be responsive to its needs, the recognizing of its realities. Third, progress is made step by step; it is better to let successful program activities generate pressure for structural and organization changes than to insist upon them up front. Fourth, while programs can have multiple goals— and that probably strengthens the overall effort, that fact is likely to mean that at least to some extent one goal is at odds with another. The fact must be recognized and the tension between goals (and those who value particular ones) addressed openly and consistently.

The following case study describes the factors considered by a project team in adapting research findings about reading instruction to a strategy for implementing a new approach in a target school.

THE LANSING SCHOOL DISTRICT/MICHIGAN STATE UNIVERSITY DEVELOPMENTAL READING PROGRAM

by
Dr. Gerald Duffy
Wainwright Teachers and
Teacher Corps Interns*

In the fall of 1976, the Lansing School District/ Michigan State University 10th Cycle Teacher Corps Program, a joint group of teachers, teacher educators and Teacher Corps interns began to develop an innovative elementary school reading program which drew upon available research data. This case study describes the reading program in terms of the ways research was used to (a) build a basic framework, (b) select diagnostic tools, (c) create management strategies and (d) determine instructional strategies.

The Reading Development Team (RDT) was charged with creating an innovative program of elementary reading instruction which reflects the existing research. This task was difficult because there are several ways of viewing the reading process, many of which are based upon philosophical, rather than research foundations. The proliferation of different philosophies and the dearth of supporting research evidence made it necessary for the RDT first to become familiar with the prevalent thought influencing reading instruction today.

A Basic Framework

The RDT examined three prevalent categories of thought about reading: the learned process view, the language process view and the interest view. The first category includes experts such as Samuels, Engleman and popular commercially packaged programs of basal textbooks, skills monitoring systems, perceptual development and so on. The second category includes writers such as Goodman, Smith and Stauffer, and approaches to reading such as psycholinguistics and language experience. The last category includes educators such

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*Teachers: Margaret Bent, Kathy Foley, Charles Ford, Mara Lud, Carol Power, Bev Price and Gail Wahlin
Interns: Odessa Bogan, Doris Carlice, Vanessa Irizarry and Brenda Zynda

as Veatch and Fader and is reflected in procedures such as USSR (Unlimited Sustained Silent Reading).

Reconciling the Various Views

At the conclusion of the study of the various views, the RDT agreed that, while each view of reading emphasized crucial elements of the reading process and had much to commend it, no single view has all the answers. For instance, while it could be agreed that some children learn to read as naturally as they learn to talk (as the language process people believe), not all children do. Similarly, while reading certainly should focus on the reading of meaningful materials, this should not be the total program. Finally, while it is reasonable to assume that many children profit from instruction presented in a systematic manner it would be wasteful to force such a structure on children who are learning to read easily.

Consequently, the RDT developed a three-dimensional concept of reading instruction which consciously attempts to amalgamate the views of all three philosophies. The first dimension emphasizes that the ultimate goal of instruction is the development of children who read for information and enrichment, a focus reflecting the views of both the language process and the interest groups. The second dimension acknowledges that there are skills to be learned which are, in effect, means to the end of purposeful reading and that children who are having difficulty learning to read or who are learning at an unsatisfactory rate should be diagnosed and instructed in terms of those "means." Inherent in this second dimension is the agreement that the "skills" should be broad enough to include not only the traditional skills of sight, word recognition and letter/sound correspondence, but also comprehension and the more recently emphasized psycholinguistic skills involving the syntatic and semantic elements of language. The final dimension emphasizes the bridge that must exist between the "means" and their application in meaningful reading—that children who do not see how the skills can be used to read books of their choice should be provided with assistance in making this transfer.

Research Substantiation

Our review of the research resulted in a program of reading instruction having three elements: (1) developing the habit of reading for recreation and information, (2) providing poor readers with the skills which are means to the goal of purposeful reading and (3) helping children apply the skills in their daily reading. In taking this position, we place primary importance on the act of reading itself and make the goal of the project the development of active readers, as opposed to developing children who can read but don't. By emphasizing this ultimate goal of reading, we are acting upon the recognition that reading is more than a sum of its component parts.

However, while the act of reading may be larger than the sum of its parts, evidence also indicates that reading is not a process which all children learn as naturally as they seem to learn to speak. Consequently, a structure is needed to teach many children to read.

Research indicates that an effective structure, especially for the retarded reader, is the subskill approach to reading instruction, but it can interfere with comprehension. It should be a means to an end. In teaching subskills, it is important to give the child ample practice reading meaningful and interesting material in context.

Based on the research evidence, we have developed an innovative elementary reading program which provides for the needs of all children while emphasizing the importance of producing children who do read. As such, it is felt that the program has potential for insuring pupil growth.

However, the RDT philosophy is more than just a program to create pupil growth in reading. It also reflects two other beliefs. The first is that teachers are most effective when they possess a balanced and comprehensive view of the reading act, the reading process and the philosophies which influence the field of reading, thereby giving them the confidence and knowledge to be independent decision-makers in their teaching of reading.

The second consideration was the belief that an effective reading program should emphasize prevention rather than remedies. Consequently, the RDT program encourages a close monitoring of pupils as a means for insuring steady and uninterrupted growth rather than waiting until a disability is discovered and then remedying it.

Determining Instructional Needs in Reading

The RDT created a program reflecting a balance among the various philosophies and approaches to reading. As such, it has three emphases: (a) skill development, (b) guided transfer and (c) attitude toward reading.

Once the major thrusts were identified, diagnostic tools were needed since children differ in terms of the skills learned, the books they can read and the attitudes they bring to reading. The problem then, was to decide on a means for determining these differences.

Two fundamental tenets guided the RDT regarding diagnosis. The first was the importance of assessing pupils as a prerequisite to making instructional decisions.

The second was the concern for eliminating undue pupil frustration. Diagnosis is the key for providing pupils with instruction which promotes a positive self-image rather than frustration (Karlsen, 1976): . . . . . . .We must determine where a child is and then teach him from that point at a rate which is sufficiently comfortable to give him a feeling of success and confidence.

With these principles as a foundation, the RDT identified the tools and procedures which could be used to determine pupil skill needs, reading levels and attitude.

Diagnosing Skill Needs

Once the hierarchy of skills was identified and ordered, a method was needed for placing each child in the hierarchy since all pupils will not need precisely the same skills at the same time.

The system for determining skill needs was operationalized by presenting the hierarchy of skills as a series of behavioral objectives. Each objective describes observable behaviors and sets a criterion for performance. To determine a skill need, the child is asked to respond to each objective. If he performs in the prescribed manner, he probably does not need instruction on that skill; if he does not, he probably needs instruction. The diagnostic procedure, then, becomes one of determining each individual's success in dealing with specific objectives. When using objectives in this way, the teacher makes instructional decisions on the basis of precise data regarding the child's interaction with the skills of reading, becoming what Harris calls "diagnostic teacher."

Despite its relatively long use as an assessment technique, objective-based testing is a current and controversial issue because of its reliance on a criterion-reference rather than a normative reference. On the one hand, proponents of objective-based tests point out that criterion-referenced techniques accentuate individual differences and facilitate skill development while norm-referenced tests fail to provide information about an individual's attainment of specific objectives. Opponents of criterion-references testing, however, point out that the criterion level for a particular objective may not be valid and that such tests do not provide comparative information with similar pupils across a large sample.

Diagnosing Reading Levels

Once skills are learned, the RDT's reading program then provides for helping pupils transfer these skills into context. This program element reflects the belief that reading skills are tools which must not become ends in themselves and that pupils who do well on skill exercises and practice sheets do not necessarily integrate these skills into the total reading act in contextual situations. Consequently, a good instructional program must include guidance in using skills when reading.

Diagnostically, the problem becomes one of determining what book the pupil should read when applying the skills he has been taught. Since pupils vary as greatly in their reading levels as they do in their skill proficiency, the question of how to accurately place pupils in books is an important one.

To make this determination, the RDT used graded oral reading paragraphs, which are usually described as part of informal reading inventories (Betts, 1957; Harris, 1961; Johnson, 1961; Miller, Strang). This technique consists of a series of graded passages, usually ranging from pre-primer to seventh or eighth grade. As the student reads orally, his word recognition errors are recorded and, when he finishes reading, he is asked a series of comprehension questions regarding the material. From this data, percentages are computed to determine the pupil's "instructional reading level" or that level of reading that is neither too easy or too hard for the child (Johnson, 1965).

The importance of determining proper placement of pupils in reading material has been established (Harris, 1961; Smith, 1976). For instance (Steirnagle, 1974), 60 per cent of the reading failures are caused by assignment of materials that are too difficult. This technique is a particularly valuable source of data when one considers that standardized tests often overestimate a child's reading level (Leibert, 1965). Consequently, the RDT decided to use oral reading paragraphs as the tool for determining difficulty levels of material pupils use under guided application of skills.

Diagnosing Reading Attitude

The RDT program focuses on the development of positive interests and attitudes toward reading. This is crucially important since "Teaching children how to read is one thing; getting them to read on their own is another," (Huus, 1972).

The importance of attitude development becomes clear when one considers that reading instruction has failed if the child refuses to read even though he may know how. There is some evidence to indicate that this may well be happening to an alarming extent.

To combat this tendency and to create children who not only can read but do read, the RDT searched, with very little success, for tools to assess pupil attitude toward reading. Literature regarding measurement of the attitudes of children toward reading leaves the distinct impression that this area has been grossly neglected (Rothstein, 1974).

Because there is no generally accepted measuring device or instrument for assessing attitudes, most authorities urge teachers to use informal observational techniques.

Hence, the RDT did not adopt formal or semi-formal devices for determining reading attitudes. Instead check lists are used to record the results of observations regarding pupil interests and attitudes. While such an important part of the instructional program should ideally be assessed in a more standardized manner, the dearth of measurement devices in this area left the RDT with no choice.

Since the instructional program developed by the RDT has three major emphasis, diagnostic devices were needed for each. In skill development, it was decided to make daily diagnostic decisions using the criterion-referenced tests developed in conjunction with the skill hierarchy while using standardized tests to determine end-of-year progress. When placing children in reading materials for guided application, graded oral reading paragraphs were administered to insure pupil placement in appropriate material. Finally, attitude assessment was accomplished through the use of observational techniques. The overall intent was to insure systematic assessment of needs since research indicates that this is one of the crucial elements of successful reading programs (Kearney, 1976).

Managing Instruction

The program of the RDT represents a conscious effort to create readers by systematically assessing and meeting instructional needs in skills, in reading ability level and in functional and recreational reading. However, systematic assessment itself creates a problem since diagnosis reveals the vastly different instructional needs of various pupils in any given classroom. Consequently, before implementing the program, the RDT had to create strategies for managing these differences in a self-contained classroom.

Toward this end, the RDT attempted to devise an efficient system for simultaneously meeting the multiple and diverse instructional needs of 25 or 30 pupils within the restrictions of space, time and scheduling, typically imposed on classroom teachers. The following sections describe that system and the skills and techniques needed by the teachers as substantiated by the professional literature.

The Importance of Effective Management

As the need for individualization in reading has become apparent, more and more educational leaders have pointed to the crucial importance of classroom organization and management. Experts emphasize that the best facilities, the most modern methods and an abundance of the best software and hardware materials are virtually useless if the teacher is unable to manage instruction efficiently.

The Strategy for Managing Instruction

The most frequently recommended procedure for insuring efficient management involves the combined use of independent pupil work and small group instruction. The independent work is designed to occupy the pupils' time meaningfully so that the teacher is able to concentrate on needed instruction.

This combination of independent work and small group instruction is frequently supplemented through the use of learning centers. These centers may take a variety of forms, but whatever the form, they ease the management problem since some pupils can work independently at the centers, thereby freeing the teacher to instruct other pupils in small groups.

Variables Affecting Management

The effectiveness of a management system is dependent upon the teacher's overall sense of organization. There is need for various instructional activities to be orchestrated carefully, and the teacher needs a sense of direction, where activities are headed and how they contribute to the overall plan.

The specific determinants of organizational expertise are many. They include establishing routines and controls, determining when and how often specific groups will meet, providing multi-level material for various children, creating independent activities possessing "educativeness," arranging classroom furniture to enhance organization, making wise use of volunteers and aides, and keeping efficient records (Early, 1976; Johnson, 1976; Smith, 1976). Clearly, effective classroom organization and management require both an overall sense of direction and an accompanying attention to detail.

Summary

Operating on the above information, the RDT designed a system for managing a comprehensive and individualized reading program in which both independent pupil work and intensive small group instruction were used during the typical reading period. Much attention was given to the determinants of good organization cited above and efforts to make the daily management procedures more efficient continue. The RDT feels that such effort is worthwhile.

Instructional Procedures

The program of the RDT was designed to reflect a balance among views of reading while developing children who read functionally and recreationally, focusing initially on gathering diagnostic data and organizing the classroom to expedite individualization. Once underway, however, the RDT was faced with examining the teacher's instructional role in the program. How does a teacher teach reading? What does the teacher do to create readers? How does a teacher correct a pupil's inability to do a reading task?

Teachers and educational leaders alike tend to meet these problems by adopting a particular approach to reading or by purchasing a selected set of commercial materials which the teachers are expected to use as a guide. The research however, indicates that the crucial variable in reading instruction is not the approach or material but the teacher who uses it; that it is what the teacher does that discriminates good reading programs from poor ones. Consequently, the RDT's instructional procedures emphasize the role of the teacher.

Basic Principles

The research contains a mass of data on teaching, primarily from the field of psychology rather than reading. From these data, five broad, undergirding principles were identified which serve as both the foundation and the parameters of the RDT's view of the teacher's role as an instructor. The five principles include a concept of teaching, the need for teaching the process of reading itself, a view of pupil needs, the role of self-concept and the importance of systematic instruction.

A View of Teaching

The RDT viewed the teacher as an active agent for change and saw teaching as the process of making learning happen by consciously arranging the learner's environment. The means for doing this are well established by experiments on learning that have produced consistent findings which give the teacher a systematic basis for instruction.

The teacher who insures learning by actively controlling the events and conditions which impact students is much more than a mere manager of the classroom. She/he must use knowledge of both reading and learning to make instructional decisions about what is to be learned at any particular time and the amount and type of control needed to insure that it is learned. Hence, teachers are decision-makers, and the validity and quality of their decisions are the crucial variables affecting instruction.

Teaching the Reading Process

A second underlying principle is what ought to be taught. We believe that reading instruction should directly reflect the reading process itself; the child should learn that reading is not an arbitrary and mysterious guessing game played by ever-changing rules but is, rather, a system of consistent and logical conventions which when mastered, eliminates the mystery from learning to read.

The teaching of the system requires emphasis on two major elements of the process of reading. First, teachers should teach their pupils that reading is a communication process in which ideas flow between authors and themselves. This element is reflected in the RDT's emphasis on building functional and recreational reading habits. Second, pupils should learn the graphemic, syntactic and semantic rules which govern the decoding and comprehension tasks in reading. This element is reflected in the RDT's skill hierarchy and its accompanying monitoring system.

Pupil Needs

Our view of pupil needs influenced instruction in a special way. It is clear that some children learn to read with ease, regardless of the approach or method used, while other children find reading to be extremely difficulty. The

RDT decided that the latter group of pupils need the greatest amount of affirmative teacher assistance and time since they do not learn to read "naturally." Data collected by the State of Michigan supports this decision by identifying the amount of time and effort expended in instruction as a crucial variable in helping poor readers. Consequently, the RDT instructional strategies were designed specifically to accomodate the poor reader with the understanding that children who learn to read with less teacher assistance should be allowed to do so.

The Role of Pupil Self-Concept

With emphasis on the poor reader and the relationship between poor readers and poor attitude, the RDT carefully considered the impact of pupil attitude on instruction. First, an understanding of the causes of poor attitude among poor readers was developed, with the RDT position matching that of Barret and Smith (Barrett, 1974).

> Most poor readers are emotionally upset because of their disability. The emotional disturbance may be shown by feigned indifference, defensiveness, hostility, withdrawal, showing off or other undesirable behavior. Teachers who recognize the undesirable behavior as symptomatic of anxiety and insecurity will react to the behavior with understanding and kindness resisting the temptation to attribute the reading problem to the negative attitude of a nasty kid.

Second, the RDT sought to lessen the frequency and magnitude of attitude problems by adapting strategies from the research which indicates that positive teacher attitudes enhance pupil self-concepts (Brophy, 1974; Goodlad, 1974). These strategies reflect the humanistic approach to instruction (Smith, 1975) and include such techniques as insuring daily success, setting realistic expectancies, using abundant positive reinforcement and others.

Systematic Instruction

While some children do learn to read with little difficulty regardless of the teacher's procedures, others do not. For those who do not, the RDT adopted a systematic instructional procedure.

The central idea in systematic instruction is adherence to a specific sequence of steps to insure the child masters each of the crucial elements in learning to read (Duffy, 1977: Gagne, 1974).

Reading cannot be left to change or incidental teaching. Neither can a hit-and-miss method be employed to accomplish such an important job. Recent research (Early, 1976; Kearney, 1976; Pidgeon) indicates that the use of a delivery system which insures systematic instruction is a crucial variable in successful reading programs.

Techniques for Teaching Skills)

To teach skills effectively, the teacher must (a) create attending behavior in the child, (b) establish in the child the ability to make the desired response and (c) help the pupil solidify the response so that it becomes habitual.

It has been established that alert attention to the task to be learned and its salient features is a crucial prerequisite to learning. Further, attending behavior itself is something that children must be helped to learn. Finally, pupils' ability to attend properly is related to the teacher's skill in directing them. Consequently, the teacher must not only teach the skill itself but also the attending behavior appropriate to that skill.

Once the child is attending, the skill can be taught. To do so, the teacher should structure a simple-to-complex progression in which the child is given large amounts of help in making responses at the early stages and steadily less help as he begins to learn the skill, a technique which some label as "prompting" (Becker, Engelmann, Thomas, 1971) and others call "highlighting and diminishing the crutches" (Duffy, Sherman, 1977). Whatever its label, the procedure is effective in helping children learn skills (Allington, 1973; Duane, 1973; Gagne, 1970; Gibson, 1971; Leight, Perrigo). Research further indicates that learning is enhanced when the progression moves from the concrete to the abstract (Gibson, 1975 & 1971) and when the teacher uses modeling when eliciting responses from pupils (Becker, 1971; Gibson, 1975; Travers, 1973; Zintz, 1970).

Once the child can do the skill with teacher assistance, it must be solidified as a habit. This calls for practice, a valued part of skill instruction. Subsequent research (Schmuller, 1962; Zimmerman, 1972) further substantiates the importance of providing the pupil with meaningful practice, although several sources (Duffy, 1977; Thorndike, 1930) point out that practice does not cause learning but merely reinforces it. Consequently, the teacher must insure that the pupil practices only that which has already been learned.

Techniques for Transferring Skills

The need for transferring skills is crucial. Barrett and Smith (1974) say:

> The task of transferring reading skills....is a critical one. Reading is a learning tool and therefore, must not become an end unto itself. Teachers have often incorrectly assumed that students who appear to master skill development exercises and who score high on standardized reading achievement tests will have no trouble comprehending....Such is not the case.

The research and writing on transfer (Gagne, 1970; Gagne, Briggs, 1974; Schmuller, 1962; Travers, 1973; Zintz, 1970) reveals two central points. First, skills learned in one situation can be transferred to another. Second, the key to achieving transfer lies with insuring that common or identical elements are present in both the situation where the skill was learned and the situation in which it is to be used.

Using this research, the RDT devised a two-stage strategy to achieve transfer. Following skill instruction, the learner receives guidance from the teacher in using the skills in context. This first transfer stage reflects the concepts of "guided application" (Duffy, Sherman, Roehler, 1977), and "guideposts" (Barrett, Smith, 1974) which calls on the teacher to give the child a reading selection, cue him/her to the skill applied, and provide guidance and feedback as the child uses the skill in reading the selection.

Once the child can use the skill in context with teacher guidance, the second stage is initiated. Here the child is involved in independent reading where he uses the learned skills without teacher help (Burrows, 1974; Duffy, 1967;

Jackson, 1972; Quick, 1973; Rothstein, Gold, 1974; Wallen, 1973). In effect this stage has a two-fold purpose. While the child is transferring the skill to his own meaningful reading, he is also developing the reading habit and reaping the benefits which come from recreational reading. As such, the final aspect of transfer focuses on the ultimate goal of the RDT—developing children who read functionally and avidly.

Summary

Being a teacher of reading in the elementary school is a monumental task. Before instruction can even begin, the teacher must have extensive knowledge of the reading process, refined diagnostic skills and the calm security and organizational skills necessary to manage efficiently the multiple simultaneous activities of twenty-five or thirty children.

But these are only prerequisites. The real task of the teacher is teaching; providing the instruction which insures that each child achieves his/her potential as a reader. It is this act of instruction which RDT emphasizes in its program; that it is the teacher's ability to make valid instructional decisions and to implement these with sensitivity and skill that makes for successful reading programs.

The following case study illustrates the parts of the development process in the application of a concept to a school's instructional program.

MURRAY STATE UNIVERSITY/HOPKINSVILLE MIDDLE SCHOOL

Cycle X Teacher Corps Project

J. Hainsworth, Project Director

By
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Research Adaptation Overview

The 10th Cycle Teacher Corps Project at Murray State University/Hopkinsville Middle School aims to create a teacher-student learning situation which identifies and makes use of divergent learning potentials and styles, with the intention that each child will be properly classified as "gifted." A substantial body of research, particularly that of Bloom, Thurston, Guilford, Taylor and Torrence, indicates that most children possess some specialized ability, of a high order, that the ability can be identified, and that the ability can be developed and maximized through appropriate teaching strategies.

The concept that each child does have unique talents is critical to the Murray State University Project, and necessitates a change, on the part of classroom teachers and administrators, in the basic assumptions and beliefs around which the school and its education program are organized. The presumptions that the typical student population will fit the classic bell curve of low to high achievers, with the vast majority of students being of "average" ability must be replaced with a commitment to seek out and develop the unique talents possessed by each child. As Bloom notes, the consequences of teachers viewing students in this way are quite profound, impacting the interpersonal ways in which the student and teacher interact as well as the instructional strategies used by the teacher in classroom teaching. (Bloom, 1963)

The traditional concept of diagnostic-prescriptive teaching involves the diagnosis of weakness and the prescription of learning activities in this area — in effect, maximizing the potential for individual failure. The thrust of this project places teachers in an entirely different arena — one which identifies strength and builds upon the student's greater potential for success in that area.

With this background in the basic concepts and ideas around which the project is organized, we shall propose to discuss the concept of development used within the project and then present three concrete examples of development as they occurred within the 10th Cycle Project.

Development Within The Murray State University Cycle X Teacher Corps Project

We see development as a necessary part of all projects. In its least complex form, the development may involve merely the adoption of a particular idea, process, or structure for use in producing a predicted set of results. Development at this level consists primarily of the ordering and allocating of resources to make optimum use of this idea, process, or structure.

A second level of development involves a certain degree of adaptation of the products or processes identified for use. Development at this level requires modification of the product or process to allow its effective use as a transplant. The adaptation of instruments to identify unique talents, developed primarily in research settings, for practical and efficient use in a public middle school, is an example of development at this level. The Talent Identification Component of the Murray State University Project, as an example of development, will be discussed in Part III of this paper.

Knowing that we had to "inservice" experienced teachers at Hopkinsville Middle School, but not knowing exactly which inservice delivery model might be most effective and efficient is an example of a third level of development. Development in this instance takes the form of planning, clarifying and classifying desirable outcomes; analyzing local constraints and the elements of institutional press; examining, piloting, and testing various models or products; and creating a unique process or product from these knowns and givens. Ideas, processes or structures are brought into existence from the parts and pieces available, and refined and modified to meet needs which may have been previously determined, or are emergent in nature.

A fourth and final level of development exists when we become aware of those vague but persistent feelings that somehow we must move toward a new concept or lose ground. Development begins, in this instance, with the clarification of needs and moves into the analysis of conceivable outcomes. At this point, the parts and pieces may not be available, but instead are created, examined, fit together in various ways, until a workable process or product is brought into existence.

LEVEL I: Adoption of existing concepts, processes, or materials for use in a specific setting.
LEVEL II: Adaptation and/or modification of concepts, processes, or materials for use in a specific setting.
LEVEL III: Conceptualization exists, but processes or materials must be created to meet needs.
LEVEL IV: The process of creation begins. Needs exist, conceptualization must take place along with the creation of materials and processes.

Selection into federally funded projects — with emphasis on the specification of pre-determined, desirable, measurable outcomes — forces the presumption that most development will appropriately occur at Levels I and

II. As we moved into the area of retraining an entire faculty of experienced teachers, however, we found ourselves moving more and more into Levels III and IV. The need for development in the project, precipitated as we moved to meet several general categories of needs. There are needs that exist simply because the project, with its prestated goals, requires development of a particular idea, process, or structure. There are needs that arise because of the various activities carried out to achieve project objectives create new demands, for which new solutions — new processes or products — must be developed. Finally, the need or opportunity to develop may arise simply because a serendipitous sequence provides us with the necessary ingredients to create. What is developed is relevant, of value, but was not a predictible outcome at the outset of the project and may not relate back to the predetermined process and performance objectives. The process of development, in itself, sets up new possibilities which lend themselves to new activities, which, in turn lead to new possibilities.

Examples of Development in the Murray State University Project

The Inservice Teacher Education Component: An Example of the Changing Level of Conceptualization

At the beginning the inservice program was a straightforward utilization of university graduate courses and workshops carried on in the field. Specific teacher training objectives were written to make possible the formulation of activities which would build teacher knowledge and skill levels within fundamental educational concerns as identified in the project proposal. As in all straightforward, low-level utilization of tested ideas, it was possible to write fairly detailed process objectives and to specify, with some precision, the kinds of activities that would be required to carry them out. Documentation efforts were seen to be a matter of accounting for planned activities, showing teacher growth or change, and at some time demonstrating the ability of changed teaching practices to effect change in student attitude toward the program at the demonstration school. Development, at this level of conceptualization, was seen to center on increasing the efficiency and motivation potential of the pre-planned activities.

During the first semester of the first year of the project, the process plans were carried out pretty much as planned. The manager, armed with the knowledge that what was being attempted was a Level I undertaking was able to develop schedules and interpersonal understandings which allowed the time table for the activities to come off with a minimum of confusion. However, at the end of the first semester, there had developed considerable dissatisfaction among all project participants as to the manner in which the inservice program was being managed, and to some extent, with the outcomes of the program.

A close scrutiny of the objections seemed to focus on the fact that the attempt at providing a single set of activities and expectations for all of the teachers was producing a fairly predictible "champing at the bit" among many of the teachers, for activities and assignments which were more in keeping with their felt needs. The university staff also felt considerable frustration at dealing with what they perceived to be inhospitable attitudes among the teaching staff toward their planned activities. All participants, however, seemed to be able to reach agreement on specific content that teachers needed to work on.

At the point of the beginning of the second semester of the first year the decision was made to modify the standard university field-based course model for inservice education. The new plan would be to agree on the possible content objectives for the inservice activities, and on a general format wherein the objectives could be accomplished. Thus was born the PIE-Cycle (Planning-Implementing-Evaluation Cycle), a scheme whereby several short-term activity packages could be tailored to each of the five newly-formed teaching teams at the school, while still allowing a great deal more with their own needs, while the university staff felt that there was sufficient structure as to permit the inservice program to function as a reputable graduate course offering.

At this stage, the manager was confronted with a Level II type of program development. The general idea of the university field-based course was maintained, but in a considerably adapted form. Process objectives could still be written, schedules maintained, and content attested to, but much more individual documentation was required to keep up with the variablility introduced by tailoring content and activities to a much more on-going set of identified teacher needs.

The experience with the PIE-Cycle format was generally positive, and a good deal was learned about the delivery of facilitation/expert services in a school-wide inservice program. The experience of engaging in a semester's worth of this type of program clearly pointed to the need for further adaptation. Both facilitators and teachers felt good about the closer contact between university and demonstration school personnel, and approved of the move toward individualization. This adaptation, however, produced an inservice climate where everyone involved wished to move to even more open ended structures and processes for managing inservice teacher education.

At this point, during the end of the second semester and summer, the decision was made to adapt the university field-based course further, to the point where we felt that we were dealing with a new and emerging concept. This conception built on the PIE-Cycle format, expanded the facilitator role of the university professors, expanded the notions of what constituted the content of the inservice program within the overall project goals, and changed the nature of the teaching mode for the university personnel. The inservice program became continuous and moved from the library after school to the teachers' rooms.

Operating as we were now, with a very different set of rules, it became much easier to engage in more daring explorations of how to conceptualize an effective teacher education program. As we experienced the new way of working, new processes and structures suggested themselves since we relied, in a sense, on serendipity to provide those happy circumstances wherein one capitalizes on new possibilities. It was out of this process-based thinking that the Field-Referenced Inservice Teacher Education Model evolved, a model which captializes on negotiation, utilization of university expertise, referencing of the program to teacher needs, and a wide range of individualized approaches for matching resources, client personality, needs, time and environment.

The development of the field-referenced model was both systematic and unplanned. It followed a leap-frog model of development as directions changed in irregular patterns. However, the path of the changes was well documented, and the steps followed a logical sequence. The demonstration of the field-referenced model became possible only because of our increased ability to conceptualize based on a careful consideration of what was, what we were doing, and what we might do next.

A Scheme for Identifying Unique Talents in Children: An Idea Which Worked, and Will Ultimately be Rejected....

The identification of unique talents in children and the maximization of these talents has been the guiding rationale and motivating force behind almost all of the activities carried on in the MSU Teacher Corps Project. The success of the project depends upon the effectiveness of this idea, that all children are indeed potentially gifted, to effect dramatic and lasting change in the way that education is delivered to children.

When the project proposal was written, it was clear that some way needed to be found to operationalize the idea that all children could be found to have unique talents if enough talents were investigated. Ultimately, the project director and staff settled on Calvin Taylor's work as the rationale for the definition of talent, and a battery test from the Institute for Research for Creativity as the indicators of talent in children.

This battery of tests yielded a set of scores which were grouped under the general categories of talent as identified by Calvin Taylor. The scores themselves were reported on a computer print out with the children grouped by the classes that they would be in during the second year of the project. Two rounds of testing yielded scores for all of the children that were to be enrolled in the demonstration school during the lefe of the project. The demonstration school houses grades seven and eight, and testing needed to be done twice during the two year period.

The testing itself, as in most creativity testing, was fairly complicated to administer, and very time consuming to score. The intern team and team leader spent many hours with both phases during the first year, and full-time staff members at MSU spent a good part of the summer grading the second round of tests. The scores themselves, when received, seem quite useful, but, as might be anticipated, the need to hand-score much of the tests and the need to send the tests to The Institute for Research for Creativity for reliable checks and machine printing, took a great deal of time, and caused a considerable amount of dissatisfaction among the teachers, who had hoped to have the scores almost immediately.

By the beginning of the second year, however, all of the scores had been obtained, and each teacher was furnished with completed class rosters. The scores substantiated the hypothesis that all children would show at least one area of high ability. Indeed, in talent identification, out of 585 students, 575 were shown to be above the 50th percentile in at least one ability, and 420 students were shown to be in the 80th percentile in at least one of the talent areas. It was noted that 100% of the first year's eighth graders were found to possess at least one talent above the 50th percentile, and that 71% were at or above the 80th percentile in at least one talent area.

As the second year of the project continued, however, it appeared that the teachers did not seem to perceive the test scores to be as useful as we had hoped. To some extent, they had great difficulty in seeing the relationship between the scores on the tests and the abilities of the children in their subject matter areas. It appeared that the teachers, in developing the idea of talent as outlined by Taylor had begun to evolve their own ideas on what consituted these talents. They did not seem to have any trouble with the notion that all children are gifted. In fact, their work had borne this out. However, the tests themselves did not seem to have the operational usefulness that they had hoped, although the results were indeed eye-opening.

The consensus among the staff seemed to be that teachers needed to develop their own procedures and criteria for rating and ranking students. The use of the test was simply too time consuming, too expensive, and not informative enough for use as an instructional tool after the project was over. In working with talent development, however, it seems clear that the demonstration school staff will work out their own procedures and will make an attempt at reporting to parents and students.

The development of this idea for identifying talents in children was straightforward. The plans for the process were laid out during the proposal state, and were carried out as designed by the project staff. The results of the testing were as expected, and showed what they were expected to show. As research or evaluation tools, the procedures seemed quite viable. However, the experience of the MSU Teacher Corps Project leads us to conclude that these procedures will not be counted on again to serve as primary instructional tools. Our Level I development was shown to have considerable utility. In merely carrying out procedures and documenting success and failure on the process objectives, decisions can be made to stop development efforts in this direction, and to look elsewhere for fruitful areas for development

The Multitalent Resource Center: "Reliance on Serendipity, or Born out of Frustration"

The multitalent resource center is a place where children may come to engage in activities calculated to stretch imaginations and enhance skills in talent areas that they are strong in. Located in a corner of a library, and manned on a rotating basis by the intern team, the center houses at least fifteen hundred boxed and cataloged materials which were collected and devised by the intern team, working with the program development specialist during the interns' summer program in the middle of the project. The center itself is divided into centers, provided with dividers, complete with rocking chair and beanbags, and a wealth of visual and material stimulus to excite the interests of children...but, it wasn't always that way.

The multitalent resource center is a product of Level IV thinking and development. As an idea, it was not stated in the proposal, it did not grow, steadily, out of experimentation with like ideas, and, in fact, we were not aware, before we thought of it, that we were looking for a multi-talent resource center. It is true that many members of the professional staff were very much aware of the idea of specialized centers. However, in this particular project the total staff and the principal were not "set" to implement anything like the center during the first stages of the project.

On the other hand, all of the work that we were doing with multitalent teaching led up to the idea of a multitalent resource center. In working to organize the total staff to begin thinking like multitalent teachers, in engaging in a variety of activities to develop skills and materials, the need for a central place, a highly-visible stimulus to multitalent teaching, became ever more obvious. It is easy, in retrospect, to analyze the situation and see that the need was there, but the idea itself as a distinct possibility for the demonstration school, had not presented itself.

As a serendipitous phenomenon, the idea actually emerged out of the frustration that the intern team was experiencing in evolving a viable role for themselves within the school. They had engaged in a great deal of community work, and were also teaching two classes each under the supervision of regular teachers, but felt that their actual talents were not recognized or utilized in other than a haphazard way. They also felt that they had been neglected by the MSU-based staff. A meeting was called by the PDS in mid-spring, and the interns with the team leader made the trip to Murray to try to spend the day evolving a strategy for more intensive involvement activities for the team members. At that meeting, one of the interns expressed the idea that it might be valuable for the interns to build some materials together in a center. At that point the multitalent resource center was born and grew steadily.

Following the meeting with the intern team, the PDS prepared a concept paper and presented it to the various controlling committees within the project, where it received general approval. With the director, a scheme was worked out between the PDS and the team leader for organizing the intern summer involvement around the concept of the center. The summer program was planned as an exploration in the development of multitalent teaching materials and actually emerged into an intensive developmental period where the basic form and concept of the multitalent resource center was hammered out. During the summer the interns also visited the demonstration school in Greer, South Carolina, which provided them with a model for what the center ought to look like. Using this model, the center came into being in the library of the demonstration site, and has been functioning successfully ever since. At this stage, development efforts with the multitalent resource center are concentrating on the form that the center will have to take to be useable by the demonstration school when there are no longer interns to staff it. The concept of the center is accepted as we cast about for the best directions to move. There are a variety of possibilities: volunteers from the high school to be in the center, a cadre of parent volunteers; a plan whereby teachers share in the responsibility for the center. Whichever approach is selected, it will no doubt result in a variety of activities designed to engage in further development of the multitalent resource center concept. At this stage, the center is an established idea (Level I) and we are not certain at what level of conceptualization further development will occur.

One of the primary purposes of Teacher Corps is to assist local educational agencies to identify and implement new programs that provide greater opportunities for children. This case history describes the development and institutionalization of a training program for the Indianapolis Public School System Title I paraprofessionals through the efforts of the Indiana University-Indianapolis Teacher Corps project. The Teacher Corps project utilized a set of educational materials known as minicourses to provide paraprofessionals with instructional skills for students who need additional reinforcement.

INSTITUTIONALIZATION OF A PARAPROFESSIONAL TRAINING PROGRAM

A CASE STUDY

By
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Indiana University

The role of the paraprofessional (or teacher aide) has often been unclear in many classrooms. This confusion is shared by classroom teachers as well as classroom aides. Teachers who do not know what skills paraprofessionals have may use their aides ineffectively. Paraprofessionals may also not be trained in specific skills. Most paraprofessionals want to be meaningfully involved in activities with children, but they are often assigned routine and menial tasks. Before classroom benefits can be realized, the paraprofessional must become more skilled in being a classroom aide. This skill must be recognized by the teacher and the paraprofessional to enable the teacher to use effectively these services.

The initiation of a paraprofessional training course by the Indianapolis Teacher Corps project was designed to give paraprofessionals competencies in specific areas such as tutoring and reading as well as to develop paraprofessionals' self-confidence. The Indianapolis Public School system traditionally provided training experiences for Title I paraprofessionals; however, some program administrators sought to improve these training experiences. Dr. Arthur D. Brill, then director of the local Teacher Corps project, and Dr. Irv Levy drew upon past experiences to develop a program that offered greater options for paraprofessionals' training.

Indianapolis Teacher Corps at this time was working with a few parents to provide training in tutoring skills. The project used sets of educational materials known as minicourses. These minicourses have been used most often by Indianapolis Teacher Corps programs to provide preservice and inservice training for teachers. The minicourses were developed by Far West Laboratory for Educational Research (FWL) in California. Brill and Zeola Adair, the Committee Coordinator, arranged for Indianapolis Title I paraprofessionals to be trained with the minicourse materials.

Materials first used were the minicourse *Tutoring in Reading* and *Teaching Reading as Decoding*. Later, the minicourses *Teaching Reading as Comprehension* and *Individualizing Instruction in Mathematics* were included. Since the initial training efforts were received with enthusiasm by paraprofessionals as well as principals and teachers with whom the aides worked, the program was continued. Initial training results showed that Title I paraprofessionals not only gained skills, but also gained confidence in using them. The paraprofessionals could articulate to teachers how they could assist students by tutoring in reading and mathematics.

Background of the Minicourse

The Far West Educational Laboratory minicourses were originally developed as instructional products for preservice and inservice teacher training and received extensive national field testing. Data obtained from the field testing was used to revise the minicourses. The format of the minicourses includes a participant manual, a set of films or video-tapes and usually a trainer's manual. Individual lessons comprise distinct chapters and are designed to be completed in less than an hour. This feature is attractive because a teacher can complete a lesson during a class preparation period.

The minicourse process was designed to be self-instructional and requires a minimal amount of equipment and AV knowledge. First, the participant reads the lesson in the manual which describes the skill to be acquired. Advance organizers are given to enable the participant to later develop a micro-teach lesson. Next, the learner views a video-tape or film which demonstrates a model lesson being performed. The learner develops a short micro-teach lesson using a few students as subjects. This micro-teach is either video-taped or audio-taped to enable the learner to self-critique her/his performance of the skill(s) being learned. If a skill is not acquired then the steps in the process can be repeated until success is achieved. After performing the skill(s) successfully, the learner then proceeds to the next chapter lesson.

The Indianapolis Teacher Corps program staff developed observation check sheets for use in critiquing video-taped or live lessons by Teacher Corps interns when external evaluation of the skill was desired.

In addition to the field testing of minicourses at schools around the nation, three 6th Cycle Teacher Corps sites were designed as minicourse utilization centers. These were the primary sites for minicourse field testing in Teacher Corps. It was previous experience with one of these centers that Dr. Brill and Dr. Ronald Britton drew upon to conceptualize a training program for paraprofessionals. When the FWL ceased minicourse developmental efforts, the Indianapolis Teacher Corps assisted in further testing of certain minicourses, particularly Mini 16 *Tutoring in Reading*. We estimate that more individuals have been trained in Mini 16 *Tutoring in Reading* in the State of Indiana than in any other one state.

Minicourse Field Testing in Indianapolis

The first minicourse offered for instruction in the paraprofessional training program was *Tutoring in Reading* which is still in a preliminary version or a field-test prototype form. The Indianapolis Teacher Corps program agreed to provide Far West Laboratory with field test data obtined from preliminary research with a small number of paraprofessionals in Indianapolis. The initial field test report stated "These data support the conclusion that Minicourse 16: *Tutoring in Reading*, is effective in teaching certain specific reading tutoring skills." And "It can be justifiably concluded that Minicourse 16: *Tutoring in Reading*, could be an effective tool to use in training reading tutors." (Downing, 1973.) The objective for the minicourse *Tutoring in Reading* is as follows: To develop the skills necessary to tutor children in reading; people who complete this minicourse should be able to help children improve their reading process, reading comprehension, and general attitude toward reading.

Careful distinction throughout the initial field-test training and subsequent training emphasized that *Tutoring in Reading* was not a language arts teaching unit, but was specifically developed to teach reading tutoring skills. It was also emphasized that the actual teaching process was primarily a function of the teacher and not the paraprofessional. The important result of this field-test study was validation that teacher aides or paraprofessionals could effectively attain the skills which the minicourse was designed to teach. One interesting sidenote, the paraprofessionals in addition to role playing in the microteaching for practice also micro-taught with a few children, including, in many cases, their own children.

The Training Program

Training sessions lasted from two to three hours per day, one day a week for a six-week period. At the conclusion of the training program, those paraprofessionals who successfully attained all the skills specified in the minicourse, participated in a formal ceremony and received a certificate of completion. The awarding of these certificates was a joint venture between the university, the school system and the Teacher Corps project.

A formalized paraprofessional training program using minicourses became more entrenched in the Indianapolis Public School system. To support the continuance of the training, staff members of the Teacher Corps project suggested that the instructional mode of the training program be revised to allow previously trained aides to become tutor-trainers themselves. Three aides who demonstrated excellence in their own tutor-training were given released time to serve as tutor-trainers. These aides ultimately became the trainers for subsequent paraprofessional training programs. It was also suggested that the site of the training be removed from the Teacher Corps learning laboratory at the University to one of the Indianapolis Public School sites. In cooperation with the Title I general consultant, the Teacher Corps project helped set up the new training site consisting of three classrooms at one of the schools which became a center for the training of Indianapolis Public Schools' paraprofessionals.

The first minicourse to be offered at the public school site was again *Tutoring in Reading* and the program was expanded to include parent volunteer aides as participants. Students in attendance at the school were tutees for the tutoring training. The first training conducted at the public school training site was also supervised by the Teacher Corps Inservice Assistants whose major task was to be available to participants for additional assistance as needed. The closed-circuit television equipment was also provided by Teacher Corps so that video-taped micro-teaching could be conducted at the school site. There were no direct costs to the aides or the Indianapolis Public Schools for the paraprofessional training program, and the aides were given released time by principals for this inservice training. The mini-course training was made available on a voluntary basis to all of the Title I teacher aides in the school district. The program has since expanded to two school sites and is under the complete supervision of the Indianapolis Public School system.

The Teacher Corps program then began offering the *Tutoring in Reading* training to parents within the high need area of the city of Indianapolis. Many of the paraprofessionals who received the instruction previously as part of the paraprofessional training program became the free lance publicity agents that encouraged parents in their neighborhoods to sign up for the training. This activity blossomed into a full scale parent training program offering minicourse skills to parents in their neighborhoods by using a converted recreation vehicle equipped with closed-circuit television in its two mobile classrooms. Previously trained paraprofessionals were again used as the trainers for the parent tutoring program. Parents who completed the minicourses were also invited to participate in the certificate presentation ceremony conducted for the Indianapolis Public School paraprofessionals. It was not unusual for as many as 100 certificate recipients to participate in the ceremony.

The importance of the parent training program in the total program is that it is not only feasible, but necessary, to help parents attain some of the skills such as *Tutoring in Reading* that are being provided for paraprofessionals in the schools. This enables reinforcement of the school tutoring to be accomplished by the parents with their children at home. It can also enable a closer bridge to be built between the home and the school. The trained paraprofessional is able to provide supporting services to parents in the neighborhood areas on an informal basis. Two other agencies assisted Teacher Corps financially in the parent tutoring training program. They were the Community Services Program of the City of Indianapolis and the Lilly Endowment.

Some Obstacles in the Development

One obstacle encountered in the development and implementation of the paraprofessional training program was the initial large response for training that had not been anticipated. The original training was to be conducted at the Teacher Corps Learning Laboratory located in the School of Education building in downtown Indianapolis. This office, being in the heart of the city, was an easily accessible central location for the training. It was anticipated that 25-30 paraprofessionals would participate in the initial training and few difficulties would be experienced in terms of equipment needs, such as closed-circuit television (CCTV).

It was also anticipated there would be sufficient space for four or five microteaching sessions to be conducted simultaneously. When the participants showed up for the first training information session, the number of participants was twice the number anticipated. Consequently, a whole new training schedule had to be hurriedly set up and additional staff assigned to acomodate the new demands. Success of the program was dependent on the cooperation between the Indianapolis Public School Administrators and the University based Teacher Corps Program. The joint planning was a necessary prerequisite to a successful operation.

Institutionalization

Presently most paraprofessionals in the Indianapolis School system receive the Minicourse skill training. Each year paraprofessionals who complete the Minicourse training program continue to receive certificates of completion during a graduation ceremony provided by the school administration.

The program is now institutionalized and self-sustained by the public school system. To date, approximately 200 paraprofessionals have gone through training. What was initially a Teacher Corps program to assist in training Title I paraprofessionals has now become an adopted training practice for paraprofessionals in the Indianapolis school system. This Teacher Corps program is one example of a successfully developed and implemented program that has continued without further Teacher Corps involvement. It illustrates one desirable outgrowth of a successful demonstration—institutionalization of the program, i.e., its continuation by the institution without additional funding from outside agencies.

Conclusion

School systems which wish to use minicourse instruction for paraprofessionals (or teachers) should be able to duplicate the effort now being conducted in Indianapolis. The Far West Laboratory for Educational Research and Development in San Francisco can provide information concerning availability of minicourses. McMillian Publishing Company markets some of them. These materials, which contain 16MM films, are more expensive than the materials for many training programs. Small districts can rotate them with other districts to reduce costs of purchasing. The self-instructional format saves the expense of hiring instructors.

Although the Indianapolis paraprofessionals program has used trainers or minicourse instructors, it is assumed that as much skill can be obtained by self-instruction. We found that audio-taping the micro-teach sessions was as effective as video-taping. Hence, districts may consider minicourses in a training system even though they lack CCTV equipment.

Although this article has emphasized the use of minicourses,the main theme of the case study needs reinforcing, i.e., the desirability of training programs becoming self-sustaining in a school system after initiation and development by a project such as Teacher Corps.

The following case study describes the steps taken in developing an instructional program based on research adaptation from the areas of emotional and social growth.

SOCIAL-EMOTIONAL EDUCATION: AN INSERVICE PROGRAM

By
Henrietta Barnes and Mary Samuelson

Under the auspices of the Lansing School District/ Michigan State University 10th Cycle Teacher Corps, a joint group of teachers, teacher educators and graduate students began in Fall 1975 to develop an innovative elementary social-emotional education program based on available research data. This case study describes the content of the conceptual framework selected as a basis of the inservice teacher education program and the process employed by the developmental team in carrying out that program.

The Content of Social-Emotional Education

The team began its developmental efforts by defining the content which would be included in an elementary social-emotional curriculum. The definition selected after a thorough search of the literature was:

> Stated quite simply, social-emotional education is that area of knowledge directed at teaching people how to handle emotions constructively in social contexts. Social context is not limited here to the common meaning implied by "socializing" activity; rather it refers to human interaction in all life roles and therefore includes the interrelationship experiences in vocational, family, civic and leisure pursuits. (Henderson, 1972)

This definition is especially appropriate since the concern of the developmental group centered on the recognition that all humans at some time in their lives experience sadness, boredom, joy, frustration, worry, appreciation, fear, confusion, agreement, hope and other natural human comforts and discomforts which are primarily experiences within a social context. The social setting of the school/classroom is especially suitable for learning how to express these emotions constructively since it represents a microcosm of the larger society with all its diversity of needs, likes, dislikes, interests, abilities, ethnic, cultural, economic and individual differences. The classroom is, further, a unique social setting in that it represents a fairly stable group that stays together for a relatively long period of time and operates according to well defined, although often unarticulated, sets of roles and expectations for its group members. As a "home base" where individuals can get to know one another quite well, it functions both as the significant social group for many youngsters and often serves as a pseudo family or place of security for youngsters during the school day. For some youngsters it may be the only source of security or stability and positive interactions they experience.

Given this collection of diverse individuals with diverse sets of needs and different expectations, it is predictible that emotions (joys, sadness, boredom, excitement, frustration) will be experienced and conflicts and problems will occur. When individual needs must be considered in the light of group needs, frustrations commonly result and are often "acted out" in unconstructive ways. Teacher frustrations also rise as personal and professional goals and activities are thwarted or delayed in the course of a school day. Joys, excitement, boredom, fear and confusion also are experienced at one time or another by every individual as each responds to the multitude of stimuli generated in the complexity of a classroom. While these emotions are universally experienced, many in our society do not learn to express such emotions constructively or to use the natural discomforts and conflict situations as opportunities for individual and group growth. Rather, the inability to express emotions constructively is regarded as one of the major contributors to the increase in school violence. Another aspect of the problem is that persons are dismissed from employment each year for unsatisfactory performance more often because of inadequate personal and/or interpersonal skills rather than a lack of technical skills and ability.

The developmental team recognized that teachers and teacher educators must provide direction for future development and research in this area. Toward that end the team accepted two major assumptions suggested by the review of literature on which to base its work: (1) a comprehensive conceptual framework which integrates all available related theories about both the content and process of social emotional education must be selected and/or developed; and (2) teachers must be educated on the basis of this broad conceptual framework rather than trained in a particular program.

A conceptual framework helps teachers to be literate in theory. One criterion of a professional is that he or she behaves according to a theory or rationale (Withall, 1975). "Unless you know why, you can never know what you should do.....Without secure theoretical base you may end up confusing students with activities that teach contradictory attitudes or concepts, or merely parading before them a series of clever but useless gimmicks." (Stanford, 1974).

Based on these assumptions, therefore, the developmental team took seriously the challenge of discovering an existing conceptual framework or developing one which could be useful in educating teachers to both increase their awareness and use of constructive social emotional behaviors and their skill in teaching such behaviors to children.

Conceptual Framework

Much work has been done in the field of affective education over the past ten years but much of it has left the classroom teacher confused. The Michigan State University conceptual framework for social-emotional education was selected to guide our developmental efforts because of its completeness and inclusiveness; under it can be subsumed most of the previous work done in the field. Figure 6 outlines the conceptual framework and indicates where various authors, theorists and practitioners fit under this organization. It includes the fields of values and interpersonal skills as foundations to understanding the constructs of exploration, respect and responsibility which are seen as the three components of a social emotional curriculum. "Respect" is viewed as respect for self and others and includes; (1) acceptance of human behavior — by expressing the allowing for the expression of diverse feelings, beliefs and values; and (2) support of human behavior by helping oneself and others to pursue personal goals. "Responsibility," a process, consists of the ability to (1) describe behavior; (2) predict the consequences of behavior and (3) intentionally act to increase the constructiveness of behavior.

The literature and research on emotions emphasizes the importance of the expression of natural human comforts and discomforts. Our conceptual framework encourages the expression of natural human comfort/discomfort in three areas: physical, intellectual and affective. The area of affective comfort/discomfort selected as our first area for development was the expression of the emotions of appreciation/frustration. These emotions are viewed as a continuum of emotional expression stemming from similar stimuli. That is, one reacts with frustration when one perceives something or someone hindering that attainment of something of value. Similarly, one reacts with appreciation when one perceives someone or something facilitating the attainment of something of value. Several factors led to our selection of this conceptual framework from which to work.

Expression of Feelings — What are Emotions? Two main points from the literature influenced our developmental efforts: (1) emotions can be viewed as energy and (2) emotional expression is learned. If emotions are viewed as generating energy, it becomes clear that this energy will be expressed in one form or another. Emotional energy which is controlled and not expressed will ultimately result either in harming others or self. Overt expressions of frustration, for instance, would include holding another person responsible or blaming another for the feelings; "controlled" emotions can lead to physical manifestations such as depression, ulcers, heart problems, etc. The assumption that emotional expression is learned (and in this society often controlled) led us to emphasize the need for teaching the "expression" of emotion in constructive ways for self and others. Given the social context of the classroom and its potential for conflict, the teaching of responsible emotional expression appeared essential.

The Role of Self Concept. One body of knowledge crucial to the area of social-emotional education and to making decisions about what to teach teachers and stress in curriculum development is that on "self concept." The importance of this content to our work is that the building of healthy self concepts in children and teachers undergirds all that we do. Of major importance to us are the contentions that (1) self concept is learned, and can, therefore, be taught or changed and (2) self concept has an impact on a child's school achievement.

The Role of Failure. Another area which is highlighted in the literature as significantly affecting social emotional development is the influence of "failure" in respect to self concept. Many educators regard this factor as the greatest deterrent to healthy and satisfying lives and place the responsibility

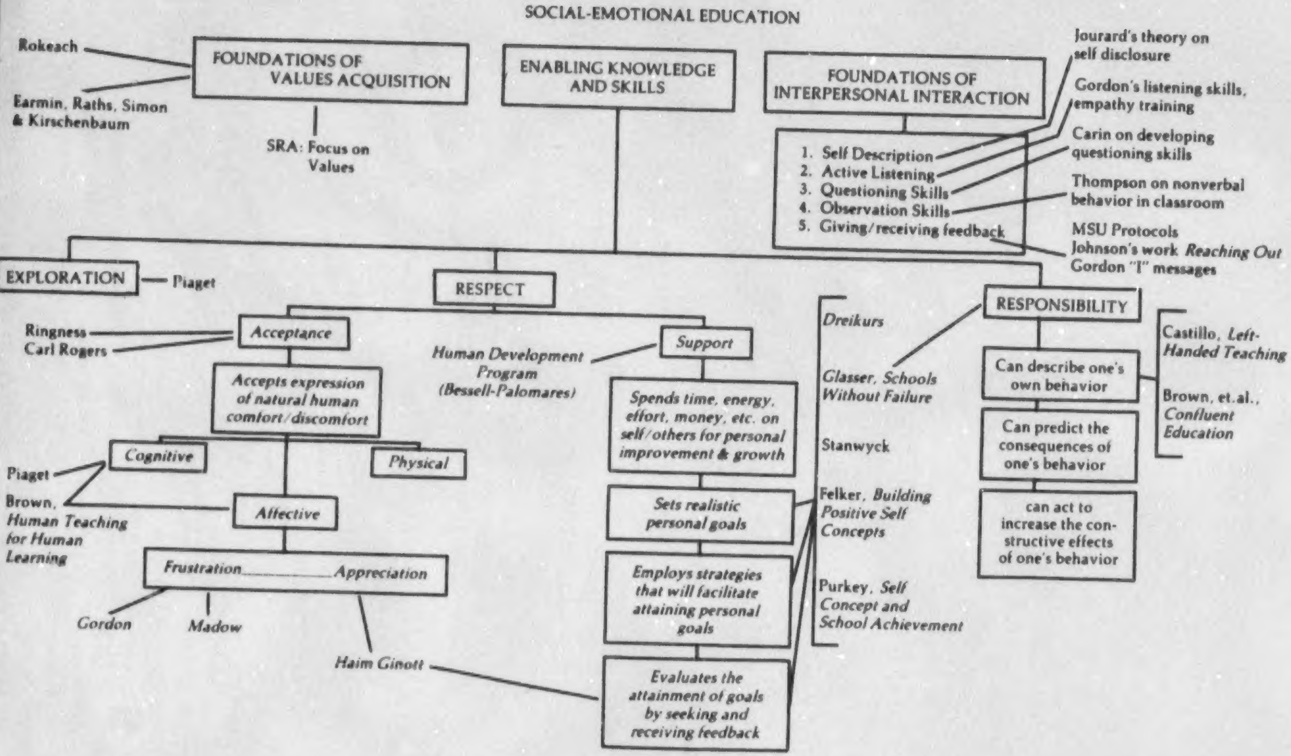
SOCIAL-EMOTIONAL EDUCATION
Rokeach
Earmin, Raths, Simon & Kirschenbaum
FOUNDATIONS OF VALUES ACQUISITION
SRA: Focus on Values
ENABLING KNOWLEDGE AND SKILLS
FOUNDATIONS OF INTERPERSONAL INTERACTION
1. Self Description
2. Active Listening
3. Questioning Skills
4. Observation Skills
5. Giving/receiving feedback
Jourard's theory on self disclosure
Gordon's listening skills, empathy training
Carin on developing questioning skills
Thompson on nonverbal behavior in classroom
MSU Protocols
Johnson's work *Reaching Out*
Gordon "I" messages
EXPLORATION
Piaget
RESPECT
Acceptance
Ringness
Carl Rogers
Accepts expression of natural human comfort/discomfort
Cognitive
Physical
Affective
Piaget
Brown, *Human Teaching for Human Learning*
Frustration ____________ Appreciation
Gordon
Madow
Haim Ginott
Support
Human Development Program (Bessell-Palomares)
Spends time, energy, effort, money, etc. on self/others for personal improvement & growth
Sets realistic personal goals
Employs strategies that will facilitate attaining personal goals
Evaluates the attainment of goals by seeking and receiving feedback
Dreikurs
Glasser, *Schools Without Failure*
Stanwyck
Felker, *Building Positive Self Concepts*
Purkey, *Self Concept and School Achievement*
RESPONSIBILITY
Can describe one's own behavior
Can predict the consequences of one's behavior
can act to increase the constructive effects of one's behavior
Castillo, *Left-Handed Teaching*
Brown, et.al., *Confluent Education*

FIGURE 6

directly on schools for children perceiving themselves as failures. Feelings which are the consequence of poor school achievement may be irreversible by the time the student reaches the sixth grade. Hence, the critical years for schools are between the ages of five and ten since failure is most easily prevented at this time. Negative identities can be turned around if schools provide success experiences before the age of ten. Teachers can guard against children's having experiences which label them as failures. When natural errors and failures do inevitably occur, they need to be offset by success experiences.

Building Success Experiences for Children. "Perhaps the single most important step that teachers can take in the classroom is to provide an educational atmosphere of success rather than failure," (Purkey, 1970). Based on the writings of Purkey, Kagan, Glasser, Ringness and Stanford, the importance of the teacher's striving to learn enough about his/her students to be able to maximize their successes each day (intellectually, physically and affectively) and to minimize their failures, became evident. We concluded that teachers need to learn to emphasize strengths rather than weaknesses and to acknowledge accomplishment as opposed to pointing out mistakes. It also emphasized the need for helping teachers create an atmosphere in which making mistakes is alright.

How Can Teachers Provide Success Experiences? Our review of the literature showed that expression of feelings, self concept and a failure identify are all learned. It led us to ask the question, "What are the implications of this for the classroom teacher?" What must we as educators in the field of social-emotional education teach? The literature search indicated that there were many areas in which the teacher could have impact. In order to facilitate the growth of positive self concepts and the constructive expression of emotion in the classroom, teachers could make the most difference if:

1. They had self awareness of the behaviors they model.
2. They modeled openness and expression of feelings.
3. They actively listened to the feelings expressed by children.
4. They expressed their own frustration and other feelings constructively.
5. They understood fear of failure and the failure syndrome in children.
6. They built in success experiences for children.
7. They gave appreciative praise (nonevaluative) as feedback to children.
8. They modeled self praise.

The hoped for consequences of these teacher behaviors would be that children would be able to accept responsibility for their actions and develop their own conclusions about their abilities based on the feedback and support they have received from their teachers.

Acknowledging Success/Appreciative Praise. In addition to the writings of Glasser and others previously cited, our thinking was considerably stimulated by the research reports of Good-Biddle-Brophy (1975). For example:

> "... effective praise is a teacher behavior related to both cognitive and affective gains."
>
> "... effective praise is the appropriate use of praise (effectively delivered

> reinforcing teacher behavior after students have performed an appropriate behavior) and the absence of excessive or abusive use of criticism that seems to make a difference."

These statements are further supported by the work of Hamachek, Kagan, Withall, Purkey and many others. The key became the phrase "appropriate use" as defined in the work of Haim Ginott. His discussion on the effects of "evaluative" statements (i.e., creation of high expectation and consequent anxiety in the learner), led us to advocate teaching teachers to deliver appreciative praise which is nonevaluative—descriptive of the learner's behavior. Our readings from Felker also indicated the importance of the teacher's modeling of self praise and teaching children how to praise themselves, which Ginott says is the key to developing positive self concepts, "...the child who has a positive self-concept has learned to give himself positive self-referrent verbal feedback and the child who has a negative self-concept has not learned to do this." Reading from Herman, Glasser, Ringness, Felker and others contributed to the need for teaching of helping behavior as an accompanying requirement for the instruction on praise.

Developing Responsibility. Ginott stresses the importance of the child's making his/her own conclusion about the meaning of the praise received: i.e., "I did a good job," "I am competent," "The teacher liked what I did," etc. Others (Purkey, 1970; Ringness, 1975; Castillo, 1974; Glasser, 1969; Henderson, 1972) who have written about the concept of personal responsibility, supported the importance of developing a child's sense of responsibility and independence. "Perhaps the most fundamental condition of creativity is that the source of evaluative judgement is internal," (Shaw). Purkey, too stresses the importance of the child developing "faith in his/her own judgements and thoughts."

In addition to recognizing the need for giving nonevaluative feedback, the work of Felker, Stanwyck, Glasser, Henderson and others indicated a need to include instruction on a process for behavior change in children which puts responsibility for behavior on the child and teaches the child to be able to describe and predict the consequences of his/her behavior. This four step process has the child describe his/her behavior, look at its consequences, seek an alternative and make a commitment to a plan which will lead toward an identified desirable change in behavior. Further, the reading on self concept especially indicated the importance of children learning to set realistic goals and the teacher's part in helping them to do so.

Confronting Undesirable Behaviors: What Does the Teacher Need to be Able to do? In observing teachers, Good, Biddle and Brophy have noticed that "most instances of 'grossly inappropriate behavior' which might seem to stem from malice or callousness are not done deliberately or even consciously by the teachers involved." They conclude as we did, that teachers do care. It becomes our task then as teachers and teacher educators to become aware of unhelpful behaviors and their consequences and provide the support and knowledge needed to change.

These and other readings provided clear direction for a curriculum which would emphasize (1) the building of teacher awareness of behaviors which are destructive to children, (put-downs, sarcasm, shaming — Ginott, 1972; Gordon, 1975; Withall, 1975) and (2) learning to recognize one's own feelings better (Murray, 1972), communicate an attitude of "not knowing it all" (Withali, 1975), create a classroom atmosphere free of threat (Stanford, 1974), express one's own feelings (Arth-Whittemore, 1974), use messages that reflect the teacher's feelings, reflect student feelings, and in general use interpersonal skills to communicate genuine caring and respect for children.

Instructional Goals

After our review of literature, it became apparent to the developmental team that constructive social emotional behaviors can be learned. It was also obvious that the skills needed to express emotions constructively must be taught as systematically as are other skill areas such as reading or mathematics. This assumption led us to conclude that such instruction should begin with clearly articulated goals for humane human behavior which would guide the development of instructional units, lessons, and strategies.

Our overall goal for the constructive (responsible) expression of emotion is based on two criteria: actions are constructive if they, (1) encourage personal growth and responsible action and (2) do not harm self or others physically or psychologically. These criteria appear in a definition of constructive expression of frustration which was selected as a basis for development of curricular units in that area:

> The human will express frustration/anger in ways that (1) decrease the change of hurting one's own or another person's body or property, (2) decrease the chances of tearing down one's own or another person's sense of worth and (3) increase the opportunity for one (self or other) to initiate responsibly action, (Henderson, 1975).

These two criteria are also supported by Haim Ginott's work and are apparent in the statement of our goal for expressing appreciation and praise:

> The human will express appreciation and/or approval to other human in ways that (1) withhold judgement of the person's character, but (2) provide information necessary for the person's growth (Lanier, 1975).

When applied to other areas of strong emotion, such as fear, the goal statements incorporated the same two basic criteria but included a consideration which is basic to the emotion itself. For example, when writing a goal for the expression of fear one recognizes that at times of "real" threats to survival, the human can only survive if he responds immediately with the well known "flight or fight" response. At other times, however, fears can be more imagined than real and personal growth can only be achieved by facing and dealing with those events which evoke fear responses and may cause individuals to live restricted, inhibited and shallow lives (Wood, 1976).

The social-emotional goal for expressing fear, then, incorporates all of the above factors and is stated as follows:

Given a fear-producing situation, the human will act in ways that:

(1) Promote individual and collective survival by avoiding or escaping those events that will harm self or others.
(2) Promote personal growth and responsible actions by:
    (a) deciding whether the situation poses a "real" threat to in-

dividual or collective survival based on knowledge of potential social, emotional, physical or intellectual consequences to self or others.

(b) acting to face or deal with the fear-producing situation in ways that do not harm self or others physically, psychologically or intellectually.

(3) Translated for teachers, this means that teachers need to plan units of instruction that:

  (a) recognize fear as a natural human response to perceived danger.
  (b) identify actions to take when real danger is present.
  (c) explore perceived dangers in terms of their real or imagined potential for harm.
  (d) identify actions to take when imagined danger is present.

These specific goals illustrate the systematic attempt to identify the desired behavior and criteria which clearly limit the range of acceptable behaviors which are being taught. Given goals such as these, enabling objectives can be identified and prerequisites specified. It is then possible to follow a logical sequence of activities and strategies which will aid the attainment of these goals.

Typical instruction in any area included three components:

- Direct instruction was used to teach the concept and skills through concrete experiences.

The following outline for teaching children the constructive expression of frustration illustrates the way concepts and skills can be sequenced for direct instruction.

I. Anger is okay — everybody gets angry.
  A. What is anger?
    1. Not getting something you want.
    2. What makes us angry?
      a. Identify the source/events.
      b. Clarify what that event makes us angry—what meaning or value is attached?
    3. Anger is energy.
    4. How do you recognize anger? What are the body's cues?
  B. What can you do when you are angry?
    1. Things not to do when you are angry.
      a. Can not hurt anyone's property.
      b. Can not hurt anyone's body.
      c. Can not hurt anyone's feelings.
    2. Things to do when you are angry.
      a. Express it verbally use an "I" statement which recognizes anger, identify the source and the reason for feeling angry.
      b. Get the energy out without hurting.
      c Work toward solution if problems or conflice exists.

- The environment was used to encourage the constructive application of the skill(s) being taught. Concrete classroom incidents help students to distinguish examples from non-examples of the skill, and to reinforce skills when they are used. Bulletin boards, impromptu class meetings and daily debriefing sessions were used here.

- The teacher modeled the use of the skill as classroom incidents occurred. This was a powerful strategy which encouraged further modeling by children. The observation/feedback component service program helped the teacher increase his/her use of the skill and provided teacher reinforcement and support for this strategy.

Once these three components are in operation they are continued. Direct instruction and skill discrimination are emphasized less often but the reinforcement and modeling of appropriate use of social emotional skills continue to be encouraged throughout the school year.

The Process of Social Emotional Teacher Education

The developmental team planned instructional activities around factors which are critical for achieving the Teacher Corps goals of (1) providing teachers with the necessary knowledge and skills for incorporating social emotional objectives into the curriculum and (2) providing teachers with the necessary knowledge and skills to design and implement social emotional teaching units.

We began our instructional sessions with the firm conviction that teachers (1) care very much about the children they teach, (2) want to provide a classroom environment where each child will grow socially and emotionally, (3) want and need alternative ways of helping children develop social emotional skills and (4) need to see that social emotional growth need not be achieved at the expense of intellectual growth (especially in math and reading). Our instructional plans centered on the following factors which we believed would most likely achieve our goals.

1. A framework of concepts and advance organizers.
2. Teachers having personal experience with strategies they could use with their pupils.
3. Developing a teacher support system and group cohesiveness.
4. Modeling to encourage new behaviors.
5. Practice trials and responsible positive and negative feedback for skill development.
6. Teacher participation in developing instructional goals and materials.
7. Time to read, think, reflect, brainstorm and interact with others about new ideas.

A brief discussion of each of these factors follows:

1. **Advance organizers.** Whenever individuals are exposed to new content, it is important for them to have an overview of the major concepts, principles, and philosophy involved. It is also essential that learners be encouraged to relate the new theory to their past experiences. An advanced organizer provided an introduction to the overall field of social emotional education and helped teachers recognize ways in which their current teaching practices were either consistent or inconsistent with the goals of social emotional education. Such

104

an advance organizer allows teachers to understand the theoretical basis for recommended teaching and enables them to make decisions that are supported by research about what and how to teach.

2. **Experiential learning.** Because we tend to teach as we have been taught (whether parents and children or teachers and students), it was important that teachers "learn about" social emotional education in the same ways their students would learn about expressing emotions in a social context. Thus, it made no sense for the developmental team to plan to "lecture" teachers about the importance of constructive emotional expression when we would not recommend that teachers "lecture" their pupils about expressing emotions. Rather, we felt more could be gained from having teachers *experience* some of the actual strategies they could later use with their students. The types of strategies which teachers experienced included the basic formats which can be used or modified to provide many variations as new social emotional content is developed. As strategies were experienced, they were discussed in light of possible usefulness with children. Potential problems, reactions and modifications were suggested. Strategies included the following:

a. Bulletin board strategies:
Each week one of the teachers was the "Attraction of the Week" and shared pictures, photos, mementos, awards, etc. which would help us all get to know each other better. Bulletin boards were also used to provide direct instruction by encouraging expression of appreciation and frustration and to provide visual reinforcement for constructive behaviors that were observed by others.

b. Role play:
This strategy was used to help participants "feel" the difference between accepting and non-accepting verbal responses. It also provides participants with an opportunity to "walk in a child's shoes" and proved valuable for providing teacher insights regarding pupil behaviors.

c. Large group sharing.
This strategy was used with new input. Readings were discussed, reactions shared and questions generated as all participants openly shared their ideas and related personal examples. These opportunities to talk about social emotional education helped create dissonance and subsequent creative problem solving both of which are central to the development of new conceptual schemes. Large group sessions also afforded opportunities to practice and receive constructive feedback on the use of interpersonal communication skills and the expression of emotions in that social setting.

d. Small group strategies:
A number of activities were carried out in groups of two or three. These groups were used when it was felt that more opportunities were needed for tying personal experiences to the current study, e.g., in building a feeling word vocabulary, in identifying ways people can express appreciation to others in various social settings and citing evidence within society indicating a need for social emotional education. The strategy was also used when we were dealing

with a problem solving task, e.g., writing specific social emotional objectives, or devising ways to reinforce desirable behaviors.

e. Direct Concept instruction:
The practice of using many examples and non-examples to aid in learning new concepts is well accepted. Instructors provided such examples from their personal experiences and encouraged all participants to identify examples in their experiences whenever possible. In addition, when such materials were available written instructional materials were employed.

f. Indirect concept instruction:
"A picture is worth a thousand words." Recognizing the power of concrete models, instructional materials were prepared to illustrate some of the ideas suggested for use in classroom instruction. These concrete examples proved useful in helping participants visualize exactly how they could develop similar materials with their students.

g. Sharing cognitive and affective reactions:
One of the most valuable strategies that teachers can use is feedback from students about how they perceive class sessions and readings. Because teacher educators wanted the feedback and because written comments following each session allowed instructors to continue a personal dialogue with each participant, a "reactions" strategy was employed. Teachers used open-ended questions to stimulate their thinking and shared their perceptions with instructors. Instructors reacted to these comments in writing also. Teacher comments about this strategy indicated that they enjoyed the written reactions and found them helpful.

3. **Teacher Support.** Teachers need a support system to counteract natural feelings of loneliness and isolation. The Teacher Corps project design which concentrates all efforts in one school made a significant contribution in this direction. In addition, the weekly class session provided many opportunities for incidental sharing and problem solving. Through the planned sharing of personal success, interests and experiences each week the group came to know and appreciate each other more fully — a necessary prerequisite for group cohesiveness and support.

4. **Modeling.** Throughout the developmental year every effort was made by university collaborators to model the behaviors being recommended. As behaviors were modeled by other participants such instances were reinforced and highlighted.

5. **Practice and Responsible Feedback.** As participants demonstrated appropriate behaviors specific appreciative praise was given to help group members recognize the many instances in which their behaviors were already naturally constructive and consistent with recommended practice. Teachers were encouraged to reinforce themselves when they exhibited the desired behaviors and to share their successes with the group. During supervised practice trials in group sessions and following classroom observations responsible

feedback (feedback that is specific and helpful) both positive and negative was also given. Such corrective feedback is essential for the development of new skills and was therefore important here.

6. **Teacher Participation.** The design of the Teacher Corps project ensured that teachers would be full collaborators in the development of curricular units based on research. Although only one teacher participated on the planning team, all teachers were expected to collaborate on the development of objectives and instructional materials. The burden of collecting and presenting research findings and synthesizing these was clearly the responsibility of the university collaborators, but teachers carried the primary responsibility for planning, carrying out and evaluating instructional units in the classroom. Our efforts, therefore, were truly collaborative.

7. **Teacher Time.** The importance of time to read, think and learn can not be overstated. As long as teachers are bombarded with daily demands of teaching with in-service classes held "after hours", there is little hope that indepth curricular development will occur. It takes time away from the classroom to reflect, brainstorm and conduct dialogue to generate alternatives. The Teacher Corps project design provided uninterrupted opportunities for teachers to "get into" their selected content areas. We believe that it was time well spent since both university and public school teachers learned from each other.

One of the major vehicles used to present ideas for discussion and stimulate thinking and problem solving was the reading of a selected bibliography. Each article or book was first read individually by all participants, who then reacted in writing. (As described earlier, all written reactions were subsequently read and reacted to by the class coordinators). Each article, chapter or book was then discussed in large group sessions. A summary of participant reactions was then compiled for future reference.

Curriculum Development Phase I

One of the difficulties noted in the literature was also cited by teachers as causing them frustration about the current emphasis on social emotional education. The lack of concrete suggestions in the literature for ways that teachers can operationalize the barrage of recommendations for helping children acquire knowledge and develop skills in the social emotional area was astounding. Not only does the teacher lack time to learn about appropriate procedures and strategies for accomplishing social emotional goals, but the teacher typically needs assistance in designing instructional units that reflect an assessment of his/her own pupils and strategies for systematically achieving intended objectives for those specific learners. The alternative for most teachers then is to either use isolated activities and strategies, gleaned from articles, books and other teachers without much concern for how the activity fits into the larger picture of social emotional education, or to rely on packaged materials with the hope that the authors have considered all of the necessary factors for social emotional education and have prepared an integrated instructional program.

Central to this Teacher Corps project was the goal that teachers would become decision makers and curriculum developers in four curricular areas. Within the area of social emotional education this goal is believed to be critical and was the focal point for determining both the content and process of our instructional efforts. Thus, as questions arose during meetings of the developmental team regarding the inclusion of various concepts, principles, and strategies, the decision was consistently based on the answer to the question, "Will this help teachers in some identifiable way to develop instructional units for the classroom?" Therefore, our activities were geared toward educating participants broadly enough about social emotional education so that they could know where and how various aspects fit together and instructing them specifically enough in one aspect of the social emotional area so that they could simultaneously develop instructional units for their students.

As soon as was feasible, therefore, our instructional sessions assumed a two pronged focus: (1) direct instruction was provided in the process of systematic curriculum development and (2) practice using this process was provided as the teachers developed instructional units for their own classrooms. It was assumed that having both some knowledge about and some actual experience in the development of curricular materials would enable teachers to continue to develop appropriate instructional units after Teacher Corps classes were completed. Following discussions of what needed to be considered when developing instructional units, an outline of the process we were using was provided. Teachers spent time working in grade level groups to (1) assess the curricular, human and environmental needs, resources and limitations and (2) begin to write specific behavioral objectives for their students. A model of objectives for expressing appreciation was provided to guide their efforts. Types of strategies needed to achieve these objectives were then identified and served as guides for the collection of specific activities, procedures, films and books which could be employed directly, modified or used as a stimulus for generating new activities. These strategies were collected, recorded on cards, typed and shared with all participants to provide ideas which could be incorporated into individual instructional units.

As assessment data were gathered, objectives written and possible strategies collected, it became necessary to provide a means of integrating these parts of the whole into a unit of instruction. An outline was again prepared which served as a guide for judging the thoroughness of the unit objectives for reaching the overall goal and the types and sequencing of strategies needed to help students achieve those objectives.

Classroom teachers then designed instructional units which were specifically tailored to the youngsters in their classroom. These units concentrated on expressing appreciation and encouraging helping behavior prerequisite to the expression of appreciation. As units were developed, they were implemented in classrooms with subsequent modifications made as students interacted and reacted to the strategies used. The first trials served to provide the concrete experiences for classroom teachers which are essential for future curriculum development.

Curriculum Development Phase 2

During the second year of the 10th Cycle Teacher Corps project, the efforts of our developmental team focused directly on demonstration of social emotional units of instruction with children.

Evaluation

An important aspect of the project is evaluation. Test instruments and observation procedures were developed to answer the following questions:

1. What changes in teacher knowledge, behaviors, and attitudes occur as a result of this instruction?
2. What changes in pupil knowledge, behaviors, and attitudes occur as a result of this instruction.?
3. What changes in classroom environments and classroom strategies occur as a result of this instruction?
4. What are teacher reactions to strategies used during this instruction?

The first evaluation task was the development of a written pre/post instrument which would measure changes in teachers, pupils, classrooms, and instructional strategies. Because there were no instruments available that could be used as guides, we began our efforts by asking teachers to respond to open-ended questions. Their response provided a range of typical responses which were then used to generate multiple choice items for the final form of the instrument.

In addition, teachers were asked to react in writing to each session. Responses indicated general satisfaction with the strategies used. Comments regarding particular strategies which were perceived as valuable helped us to repeat those activities while statements of confusion, frustration, or dissonance signaled the need to modify planned strategies for the next session. The session comments were invaluable to the developmental team as feedback and were used to guide instruction as the class progressed.

The session reaction sheets provided the developmental team with feedback which was used (1) as a means of continued interactions — as instructors responded to comments — and, (2) as a basis for modification in planned instruction, continuation of successful formats, and the creation of new strategies.

Reactions to readings provided information about the usefulness of readings and data about the effects of each article on individuals. Reactions were mostly positive and often enthusiastic. Articles which blamed teachers for pupil failure or implied that teachers were uncaring or unfeeling were perceived as inaccurate and unhelpful. Similarly, articles which stated abstract goals or theory without suggesting concrete examples of how such theory could be implemented in the classroom were also perceived as unhelpful.

The developmental process which has been described in this paper has proved to be satisfying to participants and productive for achieving intended goals. Instructional units, materials, activities and strategies have been developed and implemented with children. Children and their teachers report less frustration, greater awareness of feelings, increased concern and respect for others and a willingness to express emotions. Most importantly, both students and their teachers are expressing emotions more constructively. The task of creating an environment where the expression of emotion is encouraged and developing the skills needed to do that constructively has been a challenge. The reward for meeting this challenge has been the response from those who participated.

DOCUMENTATION

By
Greta Morine-Dershimer

There is a well-known adage to the effect that "a little knowledge is a dangerous thing." It is a warning that deserves to be heeded, particularly by those of us who wish to promote change. The first to venture out into an unknown territory, or the first to attempt a particular innovation, can make future journeys less dangerous for those who follow, by charting the paths that they have taken. This is the basic purpose that documentation serves. Without the "map" that documentation provides, no innovative project can appropriately be called a **demonstration**. The hard-won knowledge of pitfalls to be avoided, productive detours that were taken, of where the journey began and where it ended, must be shared with others, or else we must admit that the territory has only been traversed, not truly explored.

Documentaion, in the broad sense, is record keeping. But records alone do not provide documentation. An interpretation or analysis of the records is essential if they are to be useful as a guide to others prepared to attempt a similar innovative effort.

Documentation, like every other aspect of a demonstration effort, must be carefully planned. For if it is true that a little knowledge is a dangerous thing, it is equally true that too much information can immobilize. The process of planning documentation is largely a matter of selecting from among available options. Since documentation is a form of reporting, it can be productive to consider these options in relation to the time-honored reportorial questions—why, who, what, where, when, and how. The remainder of this section will take each of these questions in turn, and identify some of the available options to be considered in answering each of them.

Why Document?

There are two major options in relation to the question of why we document a particular aspect of any demonstration project. One option is to provide knowledge internally, to assist project personnel in identifying where they stand at any given point in time. The other option is to document for the purpose of providing knowledge about the project externally, to orient outside observers to the landmarks associated with a particular attempt to innovate.

In addition to providing knowledge for either an internal or external audience, documentation can be either for purposes of evaluation or to provide perspective on the process of change being demonstrated. Documentation for evaluation purposes will be most useful to the project internally if it is used as a form of interim assessment, to provide periodic corrective feedback, enabling the staff to ask "Where are we?" Documentation for evaluation purposes will be most useful to the external audience in the form of a final assessment, a report that identifies the changes that occurred as a result of project activities, or that pinpoints the end of the journey.

Similarly, periodic sightings or soundings permit the project staff to gain perspective on the process of innovation as it is occurring. In many respects in-

110

volvement with educational change is like traveling through a maze. Pausing a moment to reflect on the turns that have led up blind alleys can provide important information internally, permitting productive "course corrections." The external audience can also gain valuable perspective on the change process if documentation can be provided in the form of a retrospective survey of the twistings and turnings that occurred in the course of project operations.

In selecting a particular purpose for documentation, it is important to insure that both the internal and the external audiences be addressed in some way. If the internal audience is ignored, the risks of an unsuccessful change effort are greatly magnified. If the external audience is ignored, the demonstration effort will be useless.

In most cases the same records can be used to provide documentation for both the internal and external audiences. The depth of analysis, the type of interpretation to be made, and the point in time at which analysis and interpretation of records occurs are the major characteristics that distinguish between documentation for internal and external knowledge. The question of why document thus becomes primarily a question of which of four alternatives to emphasize most heavily. These alternatives are summarized in Figure 7.

Figure 7

Why Document?

four available options

	Evaluation of Outcomes	Perspective on Process
Knowledge for the Internal Audience	Where Are We?	What Are We Doing?
Knowledge for the External Audience	What Happened?	How did It Happen?

Who Can Document?

The options available in responding to the question of who can document also lend themselves readily to a basic division between personnel internal to and external to the project. Those persons who are intimately involved with the day to day operation of an innovative project have access to a richness and depth of information that is important to tap.

However, their perceptions are apt to be colored by their commitment to the task at hand, or by their reactions to the events and people around them. An outside observer can provide alternative perspectives, presumably more objective, and may well seek different types of information about events and outcomes, as a result. However, the amount of time that an outside observer can spend gathering information is necessarily limited in most projects. There are several different ways in which to maximize the advantages of each of these two basic approaches to who can document. One alternative is to have one person on the project who takes major responsibility for the documentation effort, identifying data to be collected, types of analyses to be used, etc. In order to remain as objective as possible, this individual typically avoids involvement in the day to day operations of the project, but keeps informed about events as they occur.

Another alternative is to have some aspects of the project documented by project personnel, while others are documented by outside consultants who come in periodically throughout the period of project operations to gather particular types of information. Under this plan the project personnel analyze and interpret the data that they collect, and the outside consultants analyze and interpret the information which they obtain. The two types of documentary evidence can then be studied and weighed together. A third alternative is to use an outside consultant to assist with initial planning of the documentation effort, have project personnel collect the designated data, then bring the outside consultant back to analyze and interpret the information gathered.

Whichever of these three alternatives is selected, it is important to remember that each role or function within the demonstration project provides the individual performing that role or function with access to some unique types or sources of information. It is sensible, therefore, that each role or function include some responsibility for keeping records on that aspect of the project.

What Can Be Documented?

The options that can be selected in response to the question of what can be documented fall into three major facets of the demonstration project. These are the functioning of program components, the progression toward program goals, and the opportunities that occur for "outreach." Documentation of the functioning of program components will typically serve the purpose of providing perspective on the change process. Documentation of progression toward program goals will typically serve the purpose of evaluation. Documentation of opportunities for "outreach" activities can determine whether the project will in fact be able to serve its demonstration function.

Within each of these major facets of an innovative program there are additional alternatives that can be selected with regard to what can be documented. If documentation is to emphasize the functioning of program components, for example, Teacher Corps demonstration projects have the option of further focusing on preservice training, inservice training, community involvement, or the project management system. None of these various program components function in isolation, of course, but each is relatively well-defined as a separate entity, and each is apt to operate in distinctly different ways.

If the documentation effort is designed to emphasize progress toward program goals, a further focus may be identified with respect to a select sample of the typically numerous goal statements. For example, there may be project goals related to institutional change, to improved pupil achievement, to changed teacher behavior, and to increased parent involvement in the school.

Documentation can be planned to concentrate on one of these different types of goals, or a specific, critical goal within each area could be selected for special attention.

If project documentation is to emphasize opportunities for outreach, an additional subdivision of alternatives can be identified with respect to what types of program activities or components stir outside interest, and with attention to how far afield the outreach extends. Analyzing opportunities for outreach in terms of program components inquired about can help project staff members to fulfill their demonstration function by making their efforts more responsive to their external audiences. Attending to the locations from which inquiries emanate can provide input about where demonstration efforts should be directed. There is some evidence (Mann, 1976) that demonstration projects have more effective impact on schools that are located at a distance from them (e.g., in another state) than they have within their immediate school district. Further information to confirm or negate this suggestion could prove very useful for future demonstration efforts.

Selection of a particular program facet to be emphasized in the documentation plan will serve to identify more specifically what will be documented. For each of the three facets identified here (functioning of program components, progress toward program goals, or opportunities for outreach) it will be essential to keep records of the events that occur and the participants in each event. Beyond that some division will occur. Documentation of the functioning of program components will require records of decisions made and implemented. Documentation of progress toward project goals will necessitate use of change indicators-ways of measuring attitudes, cognitions, or observable behaviors. Documentation of opportunities for outreach suggests the importance of determining how the information obtained was used, if indeed it was, in other schools.

The decisions related to what can be documented may be the most crucial in the development of a documentation plan. It is evident from the options identified here that there are many more things to be documented than can profitably be included in any one project's documentation plan. Selecting what will be documented determines to a great extent what will be learned as a result of the demonstration. This is not a decision to be made lightly.

Where Can Documentation Occur?

In contrast, there are not many options available with regard to where documentation can occur. Certainly most of the record keeping will occur at the project site. In the target school, or schools, records can be made inside or outside the actual classroom settings. Some records will undoubtedly be collected at the school district office and at the university. Records related to outreach activities will most probably be collected at points removed from the project site, as well as on site. In most cases the question of where documentation can occur will be answered as a result of decisions about what will be documented.

When Can Documentation Occur?

In any planned documentation effort, data will be collected according to a pre-arranged schedule. Some types of data will be collected regularly throughout project operations, on a daily, weekly or monthly basis. If the documentation emphasis is on functioning of program components, then much of the data will be collected on this kind of schedule. Other types of data will be collected at certain predetermined key points, as for example, a pre/post assessment of pupil achievement in reading. If the documentation emphasis is on progress toward program goals, then much of the data will be collected on this kind of time schedule.

A design for the timely gathering of information is essential to a productive documentation plan. But it is not enough. For the rule of life in any innovative effort is that the unanticipated event will occur. And records must be kept of such unanticipated events, for frequently they are keys to understanding the successes and failures of the demonstration project.

Documentation can occur, then, on a regularly scheduled basis, at predetermined key points, and in response to unanticipated events. In most projects each of these types of timing systems will be utilized to some extent, though one of the first two will probably be selected for special emphasis.

Another way of viewing the timing of record keeping is in relation to the past, present, and future aspects of time. Some records of events will be made in retrospect, after the fact. An anecdotal record is one example of this. Many records of events will be made immediately, as an event occurs. Minutes of meetings, or coded observations of classroom behavior are examples of these types of records. Some records may be made before an event occurs, and will stand unchanged unless the event does not occur as anticipated. A calendar of planned activities or a schedule of assigned tasks are examples of these types of records. It is probable that the most careful planning and scheduling belong here, and probably the assignment of some personnel with specific skills should be made in this area. The term "change indicator" implies that any measure used will be repeated at two or more points in time, so that evidence of change or lack of change can be gathered. Examples of change indicators include anecdotal records, responses to individual or group interviews, coded observations of the classroom behavior of teachers and/or pupils, measures of various characteristics of pupils or teachers (e.g., attitude, achievement, thinking skills), and records of the use of funds, materials, facilities, or personnel. For most demonstration projects the major focus of the documentation program will be on collection of data using one or more of these types of change indicators.

Records of decisions made and implemented, or of responses obtained from outreach activities are similar to event records in that they can be gathered and maintained with a minimum of effort. Minutes of meetings will typically provide records of many of the program or management decisions made. Written progress reports will provide descriptions of implementation of these decisions. Calendars of the off-site activities of project personnel, and correspondence files will provide some evidence of the responses obtained from outreach activities. Additional data can be gathered through the use of questionnaires, telephone interviews, or even site visits, if this aspect of project activities is to be documented more thoroughly.

Clearly, the options with regard to what types of records to keep are fairly extensive. Selection from among these alternatives must be made with attention to what the major focus of documentation efforts is to be, and what personnel skills, time and funds are available for the collection, storage, and analysis of data.

As noted earlier in this chapter, records alone do not provide documentation of a demonstration project. To have meaning for this purpose, records must be analyzed or interpreted. Most analysis or interpretation will involve a comparison of one or more items of information. One basic type of comparison that will commonly be used for documentation purposes is the comparison of similar events or measures over two or more points in time. Some examples of comparisons of similar events over time would include: a series of anecdotal records about conversations or encounters between two individuals; records of pupil achievement tests in reading, taken in September and again in May; descriptions of the interactive behavior in a given classroom, sampled on a monthly basis over the school year. In order to interpret changes that do or do not occur, these records of repeated measures over time will be compared with records of events that were designed or expected to effect change. So, for example, records of teacher participation in training events will be compared to measures of classroom interactive behavior to see if changes can be related to training.

In planning for the analysis and interpretation of data collected, it is well to remember that the analysis process typically takes much more time than the data collection process. One good reason for being very selective about what is to be documented and the types of records to be kept is the fact that analysis does take time, and that unanalyzed records represent a waste of valuable project resources.

Other Issues

Decisions about why, who, what, where, when, and how to document a demonstration project involve selection from among a number of options, as indicated from the alternatives suggested above. The selection process will almost never be a simple one. Certain issues are bound to be raised that cut across these questions.

How selective or inclusive can we be? The issue of inclusivity is basic to the development of a realistic documentation plan. The resolution of this issue will determine how many options are selected in any one category. If a documentation plan is too inclusive, the project will experience excessive demands for space to maintain records, and for personnel time to gather and analyze data. If the plan is too selective, the project will run the risk of not having information that is vital for the interpretation of unanticipated, but critical, events. This issue is not an easy one to resolve, for it is difficult to predict what types of information might assume importance in the explanation of unforeseen occurrences.

How can privacy be maintained? The issue of privacy is a critical one in demonstration projects like those in Teacher Corps, for the participants in a given project are typically relatively few in number. The question of how to document and report what happens and what changes occur, without inadvertently identifying individuals as successful or unsuccessful "graduates" of training, is a difficult one.

One question that will have to be addressed is whether change indicators should be reported in the aggregate, a procedure that could mask effects if a program is at all individualized, and when they should be reported by individual participants, a procedure which can prove embarrassing to some because of the difficulty this can cause in maintaining anonymity of subjects in small projects.

Who decides? The issue of who is to make the decisions in designing and carrying out a documentation plan is the last issue to be discussed here, but it will be one of the first issues to be faced in a demonstration project. Teacher Corps projects are collaborative, thus most policy decisions must be made on the basis of input from the various constituent groups, including teachers, parents, district administrators, and university professors. These groups are apt to have strong concerns to be represented in developing a documentation plan. Teachers, for example, will want safeguards to insure that measurements of their classroom behavior or their pupils' achievement are not used by district supervisory personnel to evaluate their teaching performance. Parents will want assurances in many cases that their children are not being experimented with, and some minority parent groups will question whether measures to be used have a built-in cultural bias.

Project managers will want the documentation plan to be designed by people who have some expertise in this area, but final decisions on this matter will need to take into account the concerns of the various groups who are intimately involved in the demonstration project.

Summary

Documentation is an essential element of any demonstration project. Documentation requires not only that careful records be kept, but also that these records be analyzed and interpreted. Planning for documentation involves selection from among several options in response to the questions of why, who, what, where, when, and how. Thoughtful planning of project documentation will enable the demonstration project to provide at least a partial road map for others who wish to attempt similar innovative activities.

Projects generally will need to take steps to preserve information in a form lending itself to meeting conveniently the demands for documentation placed on the project. Failure to preserve information in an easily retrievable form is, perhaps, the most troublesome and inefficient flaw in a documentation system, while the question of organizing the system is another important facet requiring effort and attention. The Eugene, Oregon Teacher Corps Project has instituted an archive based documentation system which assures preservation and organization of important information.

CASE HISTORY OF AN ARCHIVES BASED DOCUMENTATION SYSTEM

by
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I. Introduction

The ideas for the system grew out of the project management information analyst's (MIA's) experience in management information systems and a discussion of documentation at a Teacher Corps Research Adaptation Cluster meeting. The recommended procedures to provide for project documentation were as follows:

1) keep accurate project records in a well organized archive consisting of all memos, official minutes, accounting information, logs of problems and solutions, staff reports, staff written manuals or documents, and data collected from diverse groups.
2) operate the project according to a management by objectives (MBO) system for each project component and obtain frequent reports on activities and progress of personnel utilizing a "discrepancy" approach.
3) collect and keep observations of all parties related to the project, including impact measures and observations of internal and external evaluators to validate information.
4) provide for synthesizing information on a regular basis and in forms appropriate for various uses and target groups, including basic data when relevant.

Incorporating these procedures did not require total changes to the existing project system, since, for one thing, the project was being operated around an MBO system. Also, the project kept minutes of Steering Committee Meetings, and in other ways had followed some, but not all, of the recommended procedures. The most salient problem in implementing the recommendations was the collection of past records and information into one place. Since the project had been operating for over a year, it was of interest to find out who had what information, how to obtain it for the archive, and what information was missing.

II. Rationale for the System

One facet of the archive system development was formulation and explication of a rationale for such a system. Consideration of the properties and functioning of the system showed a typical pattern of documentation-related functions in the sequence: generation, transmission, compilation, summarization, interpretation, and synthesis. Procedures needed to be formulated and followed in relation to each of these functions to make the system work. The idea of an archive enters the sequence at the compilation stage, since the archive is where incoming information is stored in an organized fashion. Archive information is then used in the latter stages of the sequence given above.

Not all documentation activities follow through all the functions listed. For example, in monitoring project spending, cost records generated over a monthly period will be transmitted to the project secretary and then to the MIA, who will compile them, summarize them in meaningful categories and interpret the summaries with reference to previous allocations. Synthesizing information, in the sense intended herein, is not included in this example. The synthesis of information would enter if impact measures were combined with cost data to obtain efficiency estimates. In other words, synthesis is meant to refer to combining of different types of data.

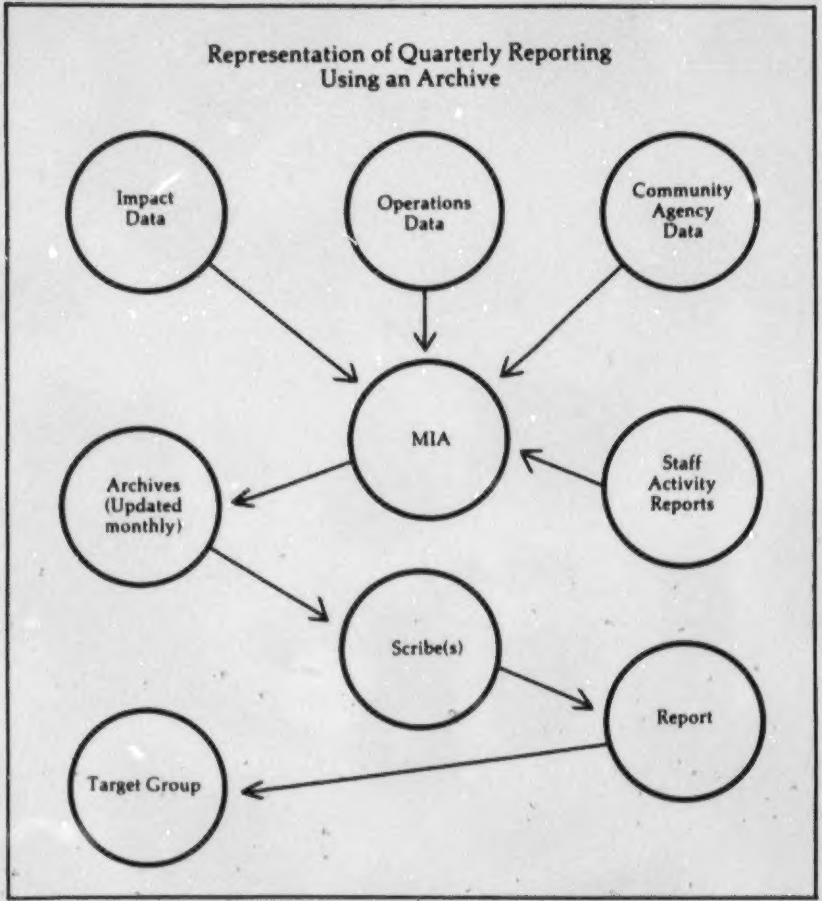
By using the system, report writing becomes a process whereby reports are generated through selection, interpretation, and/or synthesis of previously compiled and summarized information. Thus, the process of producing a quarterly report could be sketched as shown in Figure 8. There, the information for the report is directed to the MIA on a monthly basis and entered into the archive. At quarterly report time, a scribe or scribes, including the MIA, use the accumulated information to produce the needed report.

A second figure shows the main features of what happens to much information in the documentation system. "Raw" data is generated either as part of normal project operations or as part of special project requirements. This information is then accumulated over a period of time and summarized. As need be, the summaries are interpreted in written form (an exposition) and synthesized into a multi-section report. Figure 9 traces this pattern for what might be a report on the costs and impact of a project. If the report were to deal with efficiency, synthesis of summary information would take place in calculation of cost per unit of benefit, and then this data would be accompanied by an exposition (interpretation) of it. Of course, any single report can represent a host of different summaries, syntheses and/or interpretations of the same basic information.

III. Implementation

With the above background and the idea of establishing a project archive accepted, project staff were faced with a variety of questions dealing with how to

Figure 8


Representation of Quarterly Reporting
Using an Archive
Impact Data
Operations Data
Community Agency Data
MIA
Staff Activity Reports
Archives (Updated monthly)
Scribe(s)
Report
Target Group

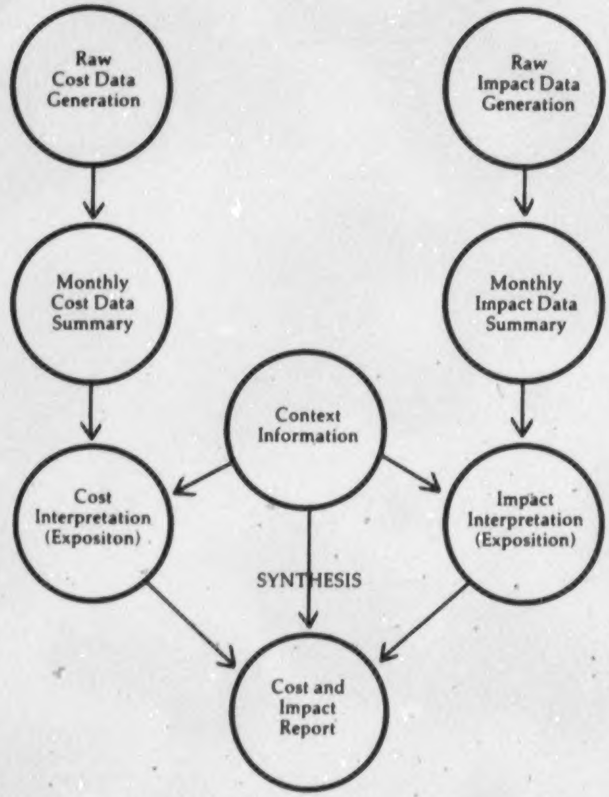
go about forming the archive and, then, the policy and procedures to be followed in maintaining the archive.

As regards forming the archive, the MIA was asked to interview staff members individually to elicit archival information. Often it was not possible to obtain duplicate copies of existing documents because the cost of doing so would be prohibitive. Thus, in many respects, archival information was dispersed. But archive records were kept of the various holdings kept by staff, and the nature and location of such records. The materials themselves will eventually be added to the archive.

In interviewing the staff, the MIA was also able to obtain archive summary information regarding activities in various categories. This summary information was focused around the Teacher Corps Funding Criteria and previewed final report preparation in that the interviews included discussion of information available, its organization, and its presentation in a final report besides

Figure 9

Information Flow and Aggregation Into a Report on Costs and Impacts


Raw Cost Data Generation
Raw Impact Data Generation
Monthly Cost Data Summary
Monthly Impact Data Summary
Context Information
Cost Interpretation (Expositon)
Impact Interpretation (Exposition)
SYNTHESIS
Cost and Impact Report

just its relevance to the archive. Thus, the steps in obtaining information for the archive served useful purposes beside that of getting information for the archive.

Some project members contributed virtually all of their papers to the archive. This gave the MIA a chance to go through the actual process of sorting out materials, appraising them, thinking about organizational schemes, and actually depositing items in the archive, taking notes for a procedures manual, and working out an indexing and card catalogue system. The types of documents encountered by the MIA were as follows:

- Personnel Records
- Schedules
- Memo's
- Staff Report Forms
- Minutes of Meetings
- Letters
- Tape Recordings
- Announcements
- Agendas
- Training Materials
- Guidebooks
- Purchase Orders
- Proposals
- Photos
- Evaluation Forms
- Budget Summaries
- Position Descriptions
- Logs
- Forms for Travel
- Manuals
- Newsletters
- Staff Writings
- Past Reports
- Research Materials and Papers, Books, etc.

Organization of these types of documents plus supplementary materials was a major undertaking of archive implementation. A tentative scheme was worked out and included in a statement of policy and procedures with regard to the archives. This statement was based on the input of staff along with the aid of a very helpful book by Maedke, Robek and Brown (1974) dealing with information and records management. The statement is included as an attachment, and an organizational scheme is given in item 6. The scheme shown is molded to the structure of the project and is ordered by frequency of use of categories rather than some other frame. Some hard decisions need to be made in working out such a scheme, and some will doubtlessly be revised as experience dictates.

Summaries produced from the information need not follow the organization of material in the archive. For example, a summary of activity related to special education might draw on material from each project component demonstrating activities related to this topic, since special education related activities might be carried on in a variety of program components. The same principle applies for other of the Teacher Corps criteria.

The statement of policy and procedures also answers other questions in regard to the archive. It set out the purpose, resources, scope, public access policy, accession procedures, appraisal, maintenance procedures, and expected benefits of the archives in addition to a tentative organizational scheme. It can be seen in the statement that the purpose of the archive is preservation of project history for operational and documentation benefits. The resources needed are an archive room, a filing cabinet, supplies such as manila and hanging file folders, plus staff reporting and maintenance time. The collection is to include virtually all materials meeting appraisal criteria (see 5b). Access will be facilitated by keeping an index and catalogue, but personnel and fiscal data will be available on a "need to know" basis. The statement lists the sources of documents, other matters already listed, and specifies that staff will transmit an archive copy of materials within the scope of the collection, that the MIA will appraise and summarize incoming information, as well as organize it and with some clerical help update files and the index.

Finally, the statement of policy and procedures lists the expected benefits of the system. These benefits have been very apparent to the MIA and to other project members. The MIA had few problems tracking down detailed information for the latest quarterly report, and is anticipating the same for the final report. Besides preserving information and easing report preparation, project personnel are pleased that the whole of their various activities are documented and obtain a sense of accomplishment and direction from this. Staff have also been stimulated to organize their own personal archive.

Another benefit of the system is that back-up information for general statements are centrally located and easily retrieved. If questions arise or certain documents are needed for any purpose, any staff member will know how to find the answer without very much trouble. The system can also be used to educate and orient new project staff, since in browsing through the archives one can learn much about the intricacies of the project in a short time.

A final benefit of the archive is that it can, without too much extra room, serve as a library for reference documents important to the project.

By far the hardest problems to solve in implementing the archive have been those arising out of the attempt to capture information from the past. It seems that it would be hard to justify spending valuable staff time on this activity were it not for the necessity of the final report. Also, some information has been irretrievably lost. However, the normal maintenance of the archive is a rather routine and non-demanding activity as compared to its **ex post facto** establishment.

IV. Summary and Conclusions

The project has started implementation of a documentation system based on a project archive. Recovery and consolidation of a year's previous information has been the biggest problem experienced, and maintenance of the established archive has been seen to provide important benefits as regards documentation. Certain questions arose regarding the implementation of the archive, and a rationale and statement of policy and procedures for the system was developed. The system was intended to follow recommendations formulated at a research adaptation cluster meeting.

The motif of the system is "Avoid retrospective retrieval of fuzzy information from remote or obscure sources—establish a project archive containing raw records and summaries so that report writing is a simple matter of reviewing, interpreting, and synthesizing accumulated information guided by the report's purpose and target audience."

The adopted system should make documentation demands and goals easy to meet as long as 1)information is preserved in adequate detail, 2) incoming information is periodically summarized, filed, and logged, and 3) an able scribe is available to generate appropriate reports.

Statement of Policy and Procedures

The Archive of Eugene, Oregon, Teacher Corps Project

1. **Purpose**: The purpose of the archive of the Eugene Teacher Corps Project is to preserve in one central location the documented history of the project for the benefits (see below) accruing to project documentation and operations.

2. **Resources:** The resources to be made available for the archive consist of:
    (1) an archive room (Room 202A at 1791 Alder Street) with bookshelves
    (2) a filing cabinet (donated from the University budget)
    (3) miscellaneous supplies (most needed have been contributed from the District budget)
    (4) three to five percent of staff time for reporting
    (5) five to ten percent secretarial or clerk time for filing and typing
    (6) twenty-five to thirty percent of Management Information Analyst's (MIA) time for appraisal, summarization, training staff, helping users, and preparing monthly reports.
3. **Scope of Collection:** The collection will include items such as financial records, minute books, reports, papers of staff, photographs, tape recordings, publications, correspondence, equipment data, questionnaires, and impact data.
4. **Access:** Personnel records in the form of applications, recruitment histories, and vitae, as well as fiscal records will be privileged information and access to these will be granted on a "need to know" basis. Otherwise, archival information will be accessible to all and assistance will be given to aid potential users of the archive.
5. **Accession Procedures:**
    a. Sources of accession will normally be through
        (1) records generation in the normal course of project administration (e.g., travel requests)
        (2) correspondence between external agencies and the project or project members
        (3) inter-person correspondence within the project
        (4) monthly reporting of staff to the University or District co-director
        (5) products of staff associated with their particular jobs
        (6) other miscellaneous document generation
    b. Appraisals: All records will be appraised by the MIA upon receipt to determine suitability for retention, inclusion in summaries and categorization. Material to be accepted for permanent retention in the archive will have at least some of the following attributes:
        (1) documents the origins, organization, or development of the project
        (2) documents or provides evidence of the project's activities and the consequences of those activities
        (3) meets possible needs for information that is incidentally or accidentally contained in records
        (4) has operational use in regard to the project
6. **Indexing and Arrangement:** Normally, material will be grouped by source and then by time or origination. The overall categorizing scheme is as follows:

Archive Management Manual and Record Control Forms

- I. Fiscal and Forms
    - Requisitions
    - Travel Requests
    - Expenditure Reports
    - Agreements
    - Summaries
- II. Training Component (Internal) Correspondence
- III. Whole Project (External) Correspondence
    - Far West Network
    - Research Adaptation Cluster
    - National Teacher Corps
    - Oregon State Department of Education
    - Miscellaneous
- IV. Steering Committee Minutes and Policy Book
- V. Intern Training Program
    - Goals
    - Training Description
    - Reports
- VI. Community Component
    - Goals
    - Material Selection
    - Pilot Testing
    - Field Testing
    - Training Materials
    - Reports
- VII. Goal Definition Component
    - Goals
    - Material Selection
    - Pilot Testing
    - Field Testing
    - Training Materials
    - Reports
- VIII. Diagnostic/Prescriptive Component
    - Goals
    - Material Selection
    - Pilot Testing
    - Field Testing
    - Training Materials
    - Reports
- IX. Assessment Component
    - Goals
    - Material Selection
    - Pilot Testing
    - Field Testing
    - Training Materials
    - Reports

X. Personnel
  Position Descriptions
  Organizational Charts and Descriptions
  Recruitment Histories
  Vita
XI. Audiovisual
XII. Reference Material on bookshelves and in files
  Reference shelves
  Reference files
XIII. Newsletters
XIV. Document Summaries
XV. Card Catalogue

7. Maintenance Procedures:

(1)staff will transmit an "Archive" copy of memos, letters, and other materials within the scope of the archive as defined above. In the event a document too long to be copied need be held as a "Convenience Copy", a notice of such and description of the material held should be sent to the MIA.

(2)the MIA will use incoming materials in preparing a monthly report of the Documentation Committee. He will also appraise incoming material, categorize and summarize it, and see that information is properly filed and indexed, and that a catalogue is properly maintained, as well as provide training and assistance to those using the archive.

(3)some secretarial and filing help, not to exceed 10 per cent of full-time in any one month, will be provided for filing, typing, and indexing in connection with the archive.

8. Expected Benefits: The most important benefit of the archive will be that it will greatly facilitate documentation of project accomplishments, experiences, and activities. Other benefits will derive from having a centralized system for document preservation, retrieval, and reference. Also, the system can be used to orientate and train new staff, provide a sense of accomplishment and direction to staff, provide motivation and example in regard to documentation, and play a vital role in improving program management.

This case study is designed to provide illustrations of how various types of records can be used to document progress toward different types of project goals, and to illustrate the various analyses that can be made of documentary records to serve different purposes and different audiences.

Because of space limitations, this case study will not describe all of the documentation procedures used in this project. The procedures selected for presentation here were chosen to highlight the variety of options that might be pursued within a single documentation plan.

A CASE STUDY OF DOCUMENTATION:

By
Greta Morine-Dershimer
the San Jose State/Alum Rock/Far
West Laboratory Project

Description of the Project

The San Jose State/Alum Rock/Far West Laboratory project is based at the William R. Rogers Elementary School in Alum Rock, California. The Rogers School serves about 600 children in kindergarten through grade five. The surrounding community is multicultural, including families of Mexican-American, Portuguese, Black and Filipino backgrounds. The majority of the children come from fairly stable, two-parent homes, and the turnover rate for pupils is not terribly high.

The inservice and preservice training programs in this project are based on research in the areas of *Pupil Learning Styles* (Spaulding, 1976), *Models of Teaching* (Joyce and Weil, 1972), *Teacher Decision Making* (Morine, 1975) and *Teacher Feedback* (Semmel, 1972). Teachers and interns have the opportunity to select from a variety of training possibilities.

Designing a documentation system for this project was not an easy task. The problem was to develop a system for documenting and evaluating a preservice and inservice teacher education program that provides numerous options for its students, relies heavily on teacher selection from among the alternatives, and changes as its collaborative decision-making operates. To evaluate such a relatively free-floating environment is considerably more complex than evaluating a fixed and predetermined program of studies (and that is difficult enough).

What is required in an emergent program with a great many options selected by individual teachers, as well as groups, is a system which can:

(a) record a considerable variety of training events;
(b) collect a range of data which can be appropriately seen as indicators of the effects of those training events; and

(c) provide that information rapidly and comfortably to a variety of users of the system, e.g., the classroom observers who provide feedback to teachers, and teachers themselves, the project managers and staff, the decision-making bodies, and the program sponsors.

In addition to the inservice and preservice training programs, it was considered important to document certain aspects of the community component. This type of documentation presented a slightly different design problem, for the parent education program was an even more emergent one, based on periodic input from the community. As the parent education program changed in response to parent interests, the parents who participated also shifted, making it difficult to follow individual parents over extended time periods. In addition, documentation of changes resulting from the community component had to rely much less on behavioral observation, and focus on other types of records instead.

This case study will report on the documentation for one goal of the community component, explaining what records were kept and the types of analysis of records that have been made for different purposes and audiences. In addition, use of records to document project management will be discussed briefly.

Inservice Training

One important goal of the inservice training program in the San Jose State Teacher Corps project has been to broaden teachers' repertoires of teaching and classroom management strategies through training in alternative models of teaching and in methods of responding to different pupil learning styles. In order to illustrate documentation of progress toward this goal, the training activities will be described, the documentary records will be discussed, and the methods of anzlysis will be explained.

Training Activities

Training in alternative models of teaching follows a similar series of steps regardless of the model being learned. Trainers at Rogers School are familiar with the models and have used them extensively in teaching children, so they may provide either live demonstrations with pupils or teachers, or may use the video-taped training materials that have been developed by Teacher Corps. At Rogers School training in a given model typically covers a five to eight week period, with a group of four to five teachers meeting two hours weekly for training.

Model Training Phases

Stage 1.- consists of an exploration of the theory of the model.
Stage 2.- demonstrates the model using videotapes or live lessons.
Stage 3.- involves peer teaching. Teachers practice the model by teaching lessons to each other.
Stage 4.- includes micro-teaching with small groups of pupils. These lessons may be observed by teachers, or by a trainer, or may be videotaped for playback and analysis by the teacher.
Stage 5.- consists of application of the model in a normal classroom situation.

Training in methods of responding to different pupil learning styles also follows a set pattern, but the pattern is quite different. An individual teacher identifies a child whose classroom behavior is causing concern. The child may be acting out, or may be withdrawn, or may display other types of behavior that the teacher finds worrisome. A classroom observer comes in to code the pupil's behavior in specified settings over a number of days, to establish "baseline" data. A preliminary diagnosis of pupil learning style is made, based on analysis of this date, and suggestions are made to the teacher about how to respond to the child. These suggestions come from a validated "treatment" schedule developed by Spaulding. As the teacher begins to change the way(s) (s)he interacts with the child, the observer comes in regularly to code pupil behavior and give feedback to the teacher as to how the treatment is working. When new, more desirable pupil behavior is well established, the regular observations cease, but periodic post-checks occur to be sure that the new behavior is maintained. Teachers at Rogers School have typically identified from one to five pupils in their classroom to work with at a time. Some pupils are identified early in the year, and others may be added later.

These two types of training are the principal activities carried on in relation to the goal of increasing teachers' repertoires of teaching strategies and classroom management techniques.

Documentary Records

To document progress toward this goal, event records, participant records, and change indicators have been used. The event records relevant to documentation of this aspect of inservice training include the calendar of teacher training activities, teacher reports of "model" lessons they have taught in their classrooms, and videotapes of "model" lessons that teachers have taught. An example of a one-week calendar of teacher training activities is presented in Figure 10.

Figure 10

Calendar of One Week's
Inservice Training Activities

Time	Trainees	Topics	Instructors	Locations
Monday 1:00-3:40	Intermeidate Teachers (Group I)	Pupil Learning Styles -analysisof Videotapes using CASES system	Dr. Robert Spaulding (Project Director) Brenda Fikes (Classroom Observers)	Teacher Corps Portable Rogers School
Throughout The day	Individual Teachers	Pupil Learning Styles —feedback on behavior of individual pupils	Brenda Fikes Liz Edwards (Classroom Observers	Classroom, Rogers School

Tuesday 1:00-2:30	Intermediate Teachers (Group II)	Models of Teaching -the Concept Attainment Mode	Dr. Mike McKibbin (Program Development Specialist	Teacher Corps Portable, Rogers School
3:00-4:00	Rogers School Faculty	Curriculum Comparison -report on the new Intermediate Grade Non-Graded Math Program	Fourth andeee Fifth Grade Teachers, assisted by Dr. Mike McKibbin	Library, Rogers School
Wednesday 1:00-2:30	Primary Teachers (Group I)	Multicultural Education -developing multicultural materials	Dr. Alba Ortiz	Teacher Corps Portable, Rogers School
2:45-4:00	Primary Teachers (Group II)	Feedback -Introduction to observation of classroom interaction	Dr. Mike McKibbin Dr. Greta Dershimer	Teacher Corps Portable, Rogers School
Throughout the day	Individual Teachers	Pupil learning Styles -feedback on behavior of individual pupils	Brenda Fikes, Liz Edwards (Classroom Observers	Classrooms, Rogers School
Thursday 8:30-9:00	Karen Sorenson (First Grade Teacher)	Feedback -plan individual study project on classroom interaction patterns	Beverly Showers, (Data Manager	Teacher Corps Portable, Rogers School
Throughout the day	Individual Teachers	Teacher Decision -Making Individual stimulated recall interviews	Dr. Greta Dershimer Dr. Bruce Joyce (Coordinator of Documentation Efforts	Teacher Corps Portable, Rogers School
Friday 11:00-11:50	Classroom Aides	Tutoring in -Mathematics -Lesson 2 of Minicourse	Edna Harris (Team Leader)	Library, Rogers School

Participant records include lists of participants in training groups choosing to study models of teaching, and lists of teachers opting to receive feedback on the learning styles of selected pupils in their classrooms. A weekly record of teacher participants in training is kept by the Program Development Specialist as part of the project LOG. Figure 11 shows an actual entry from the LOG that includes this type of participant record.

Figure 11

Teacher Corps Log
Scheduled Activities
Training—week of 1/24-28, 1977

Terry Clay and Pat Hayes continue with their Multicultural unit on Black Americans.

Sheila Balistreri, Diane Bustamante and Marge Guzzetta completed their Concept Attainment exercises by teaching lessons to their students.

Rita Romane, Olga Magnone and Isabelle Fryer talked about practical applications of Concept Attainment.

Mary Beth LaFlam, Lynn Witt, Ellen Brooks, Pat Hanzad, Marge Guzzetta and Terry Clay participating in the after school Math training, watching the Open Math inservice course and discussing the use of Math manipulatives.

The entire faculty participated in an inservice workshop on Reading. Today's activities were the mini-course on using Contextual clues for decoding, led by Mike, with Mr. Collett and Isabelle Fryer participating. Greta Morine Dershimer explained the use of the *Primer for Parents* to instruct parents on how children learn to read. Attending were Miss Weinzerl, Mrs. Mauzy, Mr. Piper, Mrs. Sorenson, Mrs. Hayes, Mrs. Brooks, Mrs. Hanzad, Ms. LeFlam, Mrs. Clay, Mrs. Guzzetta, Mrs. Bustamante and Mrs. Balistreri.

Bruce Joyce and Bev Showers gave a presentation of giving feedback and learning about a teacher's classroom interactions to the entire faculty.

In some instances participant and event records are combined in one set of information. An example of this would be the file folders that are maintained on classroom observation and feedback to teachers. Each teacher has a file containing notes on when classroom observations are made, what pupils are observed, and what suggestions have been made to the teacher about new ways to interact with the child. An example of the observations recorded for one boy in a fifth grade classroom is presented in Figure 12. For each date entered. a coding sheet is available containing the actual coded observations of behavior.

Change indicators that serve to document progress toward the goal of increasing teachers' repertoires consist primarily of coded observations of the classroom behavior of students and teachers. Observers visit the classroom on a regular basis and record behavioral data using the Teacher Innovator System-TIS (developed by Joyce and associates at Teachers College, Columbia University, to observe changes in patterns of teaching behavior occurring as a result of using different models of teaching) or the Coping Analysis Schedule for Classroom Settings-CASES (developed by Spaulding for the observation of

Figure 12

Observations of A.R.
from file of S.B., a fifth grade teacher

Date	Subject Area	Setting
12/7	Reading	TD (Teacher Directed)
12/8	Seatwork	PD (Program Directed)
12/9	Spelling	TD
12/13	Math	PD
1/3	Language Arts	TD
1/5	Reading	PD
1/12	Art	PD
1/17	Reading	PD
1/24	Reading	PD
2/1	Language Arts	TD
2/2	Language Arts	TD
2/7	Reading	PD
2/14	Spelling	TD
2/28	Reading	TD
3/1	Language Arts	PD
3/7	Art	PD

changes in pupils' classroom behavior). Observational data are fed into a computer through a terminal located at Rogers School. These data can be stored for later use, or retrieved rapidly in analyzed form for use in providing feedback to teachers. An example of a computer printout showing a description of a lesson using the TIS coding system is presented in Figure 13.

Other types of change indicators for this inservice training goal include interviews with teachers about their instructional decision-making. Periodically, lessons are videotaped, and the videotape is played back to the teacher in a "stimulated recall" interview. The teacher is asked to stop the tape at points where (s)he is aware of having made a decision or of thinking about something important related to the pupils or the lesson. Teachers explain what they were noticing about pupils, what they were trying to achieve with the lesson, why they chose to make a particular instructional move, and so forth. Their comments in these interviews are coded, and can be examined over time to determine whether training in models of teaching or pupil learning styles has in any way altered their perceptions of pupils or their instructional decisions.

Analysis of Records

The documentary data collected in relation to the goal of broadening teachers' repertoires of teaching and classroom management strategies can be analyzed and reported in different ways for different audiences. These data have been used internally for feedback to teachers about changes occurring in their classrooms, and for interim assessments by the project staff to identify points when further training is needed to enable teachers to use new strategies more effectively in the classroom. They will be used externally for final assessment and reporting to Teacher Corps on the effects of the demonstration training program. An example of the analysis of data for internal use in feedback to

Figure 13

Segment of Computer Printout of TIS Data*

Frequency Distribution (Molecular Codes):

TQ—Teacher Questioning	12
TS—Teacher Statements	54
SQ—Student Questioning	0
SS—Student Statements	34

Category Frequencies

Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Frequency		0	0	0	0	28	0	30	1	0	0	0	0	1	0	1	7	2	0

	TQ	TS	SQ	SS
Category 1	0	0	0	0
Category 2	0	0	0	0
Category 3	0	0	0	0
Category 4	0	0	0	0
Category 5	2	18	0	0
Category 6	0	0	0	0
Category 7	1	17	0	12
Category 8	0	1	0	0
Category 9	7	9	0	14
Category 10	0	0	0	0
Category 11	0	0	0	0
Category 12	0	0	0	0
Category 13	0	1	0	0
Category 14	0	1	0	0
Category 15	0	0	0	0
Category 16	0	1	0	0
Category 16	0	1	0	0
Category 17	1	6	0	0
Category 18	1	1	0	0
Category 19	0	0	0	0

Indices:

Sanction	.110
Information	.300
Structuring	.590
Student/Teacher Talk	1.941
Positive/Negative Sanctions	1.000
Higher Order Information Processing	0.000

Questions to Statements:

Student	0.000
Teacher	.222

	TQ	TS	SQ	SS
TQ	0	2	0	10
TS	5	87	0	21
SQ	0	0	0	0
SS	7	24	0	3

TIS Categories

Category 1—Planning Goals and Standards; Directive
Category 2—Planning Goals and Standards; Negotiated
Category 3—Planning Content; Directive
Category 4—Planning Content; Negotiated
Category 5—Planning Procedures; Directive
Category 6—Planning Procedures; Negotiated
Category 7—Implementing—Instructional
Category 8—Implementing—Non-instructional
Category 9—Processing Factual Information

Category 10 — Processing Conceptual Information
Category 11 — Processing "Theoretical" Information
Category 12 — Processing "Open" Information
Category 13 — Processing Opinion
Category 14 — Positive Feedback
Category 15 — Neutral Feedback
Category 16 — Negative Feedback
Category 17 — Corrective Feedback
Category 18 — Repeat
Category 19 — Digression

***Explanation of Printout**

In this lesson the teacher was teaching reading to a group of four children. This printout shows that the teacher asked 12 questions and made 54 statements, while children asked no questions and made 34 statements. The teacher asked 2 questions about procedures to be used in the lesson, and 7 factual questions, and made 18 directive statements about procedures, 17 statements about implementing instruction, 9 statements about factual information, and gave corrective feedback 6 times. Students made 8 statements about procedures, 12 about implementation of instruction, and 14 about factual information.

The "Indices" show that 1/10 of the talk involved sanctioning (or feedback), 1/3 (.300) of the talk dealt with information, and over 1/2 (.590) of the talk was structuring of the lesson. The teachers talked almost twice as much as the students (1.941), and there were as many positive as negative sanctions or feedback statements made (1.000). None of the information processing was above the factual level.

The final section shows that 2 teacher questions were followed by teacher statements, 10 teacher questions were followed by student statements, 5 teacher statements were followed by teacher questions, 27 teacher statements were followed by another teacher statement, and 21 teacher statements were followed by student statements. Seven student statements were followed by teacher questions, 24 student statements were followed by teacher statements, and student statements were followed by student statements. In other words, the most prevalent patterns of interaction were: a flow of teacher statements; a student statement followed by a teacher statement; a teacher statement followed by a student statement.

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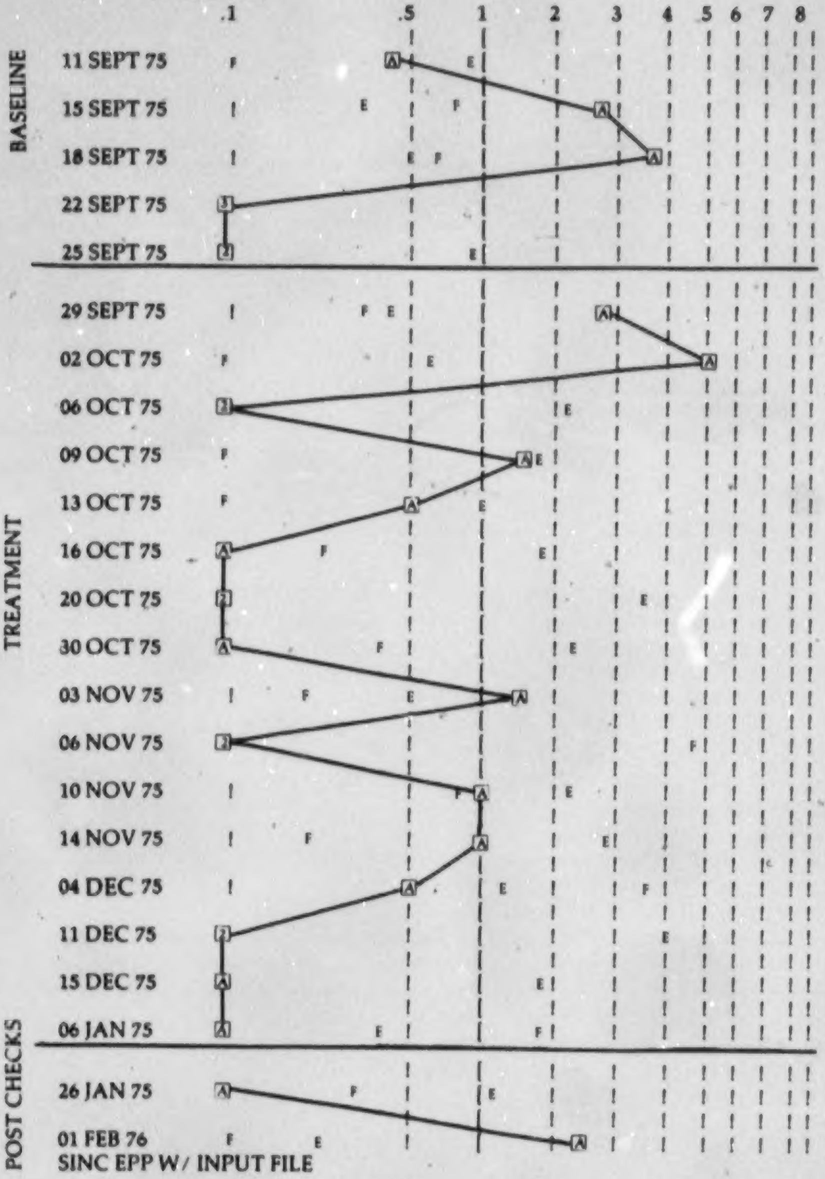
teachers is presented in Figure 14. This is a computer printout of CASES observations of the classroom behavior of one pupil over time. This pupil was identified by the teacher because of high aggressive behavior in the classroom, so the printout highlights the incidence of Style A (aggressive behavior) at each observation point, by boxing it. When baseline data was collected in September, Style A behavior was high, above the "visibility threshold", while Styles E (complaint, conforming) and F (socially integrative) were below visibility. As treatment went on through October, November, and December, with the teacher using suggestions about how to interact differently with the child, Style A behavior decreased, and Styles E and F increased. The January post-check showed Style A continuing low and Style E continuing high, but the April post-check shows these positions reversed, indicating that the teacher needs to reinstate the treatment. Printouts of this type are used by observers to describe to teachers the changes that are taking place in their classrooms as they utilize new management techniques. Of course, teachers see these behavior changes for themselves in other ways, but the computer graphs serve as visible records of the effects of training.

For purposes of final assessment of the training program, several types of comparisons will be made. The general focus will be to identify the teachers who participated in models training and/or CASES training, the amount of training they received, and the number of different teaching strategies or classroom management techniques they used in their classrooms during the

Figure 14
PLOT OF CASES STYLES

ROGERS SCHOOL
STUDENT NUMBER 1402
STYLES AEF



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training period. The changes resulting from this training will be assessed in at least three different ways. First, changes in classroom behavior of pupils over time will be analyzed, using CASES observation data, as illustrated in Figure 5 earlier. Second, teachers' natural interactive styles will be compared to their interactive patterns while using models of teaching. to assess the changes in teaching behaviors resulting from training. The TIS observation data will be used for this purpose. Third, teachers' styles of decision-making in their early lessons can be compared to their styles of decision-making near the end of training, to determine whether changes occurred in the kinds of things they notice about pupils during lessons, or whether the types of goals they have for instruction change as a result of training. For this purpose, coded data from "stimulated recall" interviews will be used. It will also be possible to examine school records of pupil achievement over time to determine whether any changes have occurred in pupil achievement gains in conjunction with the teacher training program.

For the information of other inservice training projects, and as a part of the diffusion component of the project, records of this aspect of the training program will also be analyzed to identify patterns in the training preferences of teachers. This is important in a training program where teachers choose the content and sequence of training that they will receive. One kind of comparison that can be made here is that of grade level differences in selection of training. This comparison to date reveals that none of the primary teachers at Rogers School have opted for extended training in any of the models of teaching, although they have been introduced to several models through participation in demonstration lessons. Most of the intermediate teachers, on the other hand, have received training in at least three different models and have used these repeatedly in their classrooms.

Another kind of comparison to be made involves examining the sequence of training chosen by teachers. This analysis reveals that the intitial training desired by most teachers was feedback on pupil learning styles and suggestions on classroom management techniques appropriate for the learning styles identified. That is, teachers focused first on observation of pupils' classroom behavior. When they began to see important changes in their classrooms as a result of this training, then they began to request other types of training, such as assistance in acquiring new models of teaching or new skills in using manipulative materials with children.

These types of analysis can prove useful to other inservice programs, which may be unable to provide a large number of training options for teachers at any given point in time, by suggesting what types of training requests they might anticipate.

The data collected for purposes of assessing progress toward the project goal of increasing teachers' repertoires of teaching strategies and classroom management techniques can thus be analyzed and used in different ways to serve a variety of documentation needs and a variety of audiences.

Community Involvement

One important goal in the community component of the San Jose State Teacher Corps project is to increase parent understanding of the school instructional program. Documentation of progress toward this goal will also be illustrated by describing the parent education activities, discussing the documentary records, and explaining the methods used to interpret this data.

Parent education activities. Several different types of parent education activities have been conducted in relation to the goal of increasing parent understanding of the Rogers School instructional program. Curriculum study groups focussing on either reading or math have been conducted for parents, to explain the types of teaching procedures that can be used, to provide opportunities for classroom observations and follow-up discussions with the teacher, to preview the content to be covered in a given grade, and to introduce simple games and activities that parents can use at home with their children to reinforce school learning. These curriculum study groups typically involve from twenty to forty hours of instruction for parents.

Parent-teacher study groups have been conducted where the focus of discussion is on sharing information about the home life and the school life of children at Rogers School. Parents and teachers of children at a particular grade level met together to discuss questions like the following:

1. What responsibilities do children have at home?
2. What do teachers expect of children at school?
3. What educational experiences do children have at home?
4. What educational resources do teachers provide in school?
5. What are the educational resources of the larger community that can be used by parents and teachers?
6. What educational and occupational hopes do parents have for their children?
7. What aspirations do teachers have for children in their classrooms?

These study groups met during the 1976 summer training program, for four consecutive days, two hours a day.

A third type of parent education activity has been to involve parents in the planning of a multicultural education program at Rogers School. Parents have met to examine multicultural education materials, to hear outside consultants describe alternative programs in multicultural education, and to provide input about their own goals for the multicultural education of their children. Some parents have traveled to conferences on multicultural education. Others have participated in a cultural assessment designed to gather information about how specific subcultures are actually lived in the local community.

These various types of parent education activities are only a small part of the community component, but they are the activities most closely related to the goal of increasing parent understanding of the school instructional program.

Documentary records. Progress towards this goal has also been documented through maintenance of event records, participant records, and change indicators. Event records in this case include calendars of parent meetings, both planning sessions and study group meetings, course outlines of content covered in curriculum study group meetings, and photographs of parent activities during these meetings.

Participant records include lists of parents attending various planning meetings and study group sessions. The project secretary compiled participant records to make a master list of parent participants in the various activities.

Change indicators for this aspect of the community component involve:

(1) records that teachers keep of parents who observe or volunteer to assist in their classrooms;
(2) anecdotal records of topics discussed;
(3) issues raised;
(4) concepts utilized in parent study group meetings;
(5) project records of the number of parents participating in similar activities over time. An example of one teacher's report on parent involvement in her classroom is presented in Figure 15 Teachers at Rogers School routinely keep records of parent involvement as a requirement of a special state funding program. They simply summarized these records for use in documentation of the Teacher Corps project.

Figure 15

Parent Involvment in Classrooms

Teacher Bonaventure

Regularly scheduled volunteer work (weekly)

Name	Day	Time	Activity
Mrs. Fernandez	Tuesday	10:30-11:30	Math

Parents who have helped intermittently

Name	Approximate # of Times	Activity
Mrs. Wilson	20-25	Math
Mrs. Marales	5	Reading
Mrs. Santos	10	ESL
Mrs. Ireano	10-15	ESL
Mrs. Rodriques	10-15	ESL
Mrs. Gonzales	10-15	ESL
Mrs. Estevan	10	Math

Analysis of records. The documentary data collected in relation to the goal of increasing parent understanding of school instructional programs have been analyzed and reported in several different ways. These data have been used internally for feedback to teachers about community involvement in the school. They will be used externally in final reports both by the school staff and the project staff.

An example of the analysis and compiling of documentary records for internal use is provided in Figure 16. This is a copy of a project report to teachers on the 1976 summer training program. To prepare this report, numbers of participants in each activity, and instructors' descriptions of study group sessions were utilized. In addition to this written summary, parents and teachers who had participated in the program gave verbal reports in a faculty meeting about what they had learned and how their attitudes had changed. In addition, teachers were given the list of participants in summer training so that they could identify the parents in their classroom who had shared in these experiences.

Figure 16

Report to Teachers
Summer Training Program
Rogers School Teacher Corps
June 21 - July 16, 1976

The first Teacher Corps "Summer School" was very successful. Courses were available for teachers, classroom aides, and parents. Over the four week period more than 50 parents participated, several of them taking two and three courses. There were many requests from parents to continue in the summer training. In two classes teachers, aides, and parents all worked together.

The general schedule was as follows:

First Week: 8:30 - 12:30, Monday - Friday

Thirty parents began course with Greta on Helping Your Child in Reading. (Observed in classrooms: learned differences between phonics, sight, and experience approaches to teaching reading; visited local library; learned activities to try with children; worked with an individual child for a short time.) Four aides began mini course with Edna on Teaching Reading As Decoding. (Observed demonstration films, read instructional manuals, did micro teaching with children from summer classes.)

Second Week: 8:30 - 12:30, Monday - Friday:

Parents continued Reading course. Aides continued Reading course.

1:00 - 2:00, Monday - Friday:

Six teachers and one aide began course on Developing Instructional Materials. Intermediate teachers worked on organizing new math program and writing pre-tests and contracts. Others developed games and audiotapes for use in reading. Assistance was provided by Mike, Greta, and a teacher-consultant from Whisman School District in Mt. View.

Third Week: 8:30 - 12:30, Tuesday - Friday:

Three aides began mini course with Edna on Tutoring in Mathematics. (Observed demonstration films, read instructional manuals, did micro teaching with children.)

1:00 - 3:00, Tuesday - Friday:

Thirty-five to forty parents, five teachers, and three aides participated in a course on Family Life/School Life. Three discussion groups met daily, each led by parents, and shared information on parent and teacher expectations of children and goals for children. Parent facilitators were trained and coordinated by Dick. Edna, Ernie and Lupe participated as group members.

Fourth Week: 8:30 - 12:30, Monday - Friday:

Thirty-three parents began a course with Pat Hanzed on Helping Your Child in Math. (Observed in classrooms, tried using manipulative math materials, learned concepts in "new math," worked with a child for a short time.) At end of course parents turned in a petition requesting that course be continued in fall.

Fourth Week: 1:00 - 1:00, Monday - Friday

Seventeen parents, three aides, and three teachers met to discuss goals and program possibilities for Multicultural/Bilingual Education. Edna, Ernie, and the interns participated. Discussions were coordinated by Greta and Rob. Dr. Henry Truala, visiting consultant, led the discussions on Wednesday, Thursday, and Friday.

Minnie Diaz participated in all the courses available to parents and coordinated the class for teenagers on Child Care. This class ran for four weeks. The instructor was Mrs. Fangualia, a parent in the community and a former teacher.

An example of the analysis and use of data for purposes of external reporting would be the compiling of teacher reports on parent involvement in classrooms. These lists of parent volunteers were analyzed to identify which volunteers had been involved in the Teacher Corps project's parent education program, and which had not. These two lists were then compared. The result is presented in Figure 17. This comparison seems to indicate that more parents who volunteer have been Teacher Corps participants than not. But this does not demonstrate that parents are volunteering as a result of the parent education program. One additional set of data can be useful here.

In September of 1976 teachers were asked to review their records of parent involvement for the previous year and compare them to their present records. These pre-project and mid-project data were compared, and the results are presented in Figure 18. These records do demonstrate a change in parent volunteer activity associated with the Teacher Corps project, and when the two sets of data are compared they can be interpreted to suggest that the parent education program is increasing parents' understanding of and comfort in the school setting, thereby encouraging them to spend more time in that setting.

Figure 17

Parents Volunteer and Participation in Parent Education Program

	Number of Parents in Regular Volunteer Work	Number of Parents in Intermittent Volunteer Work
Volunteers who participated in Parent Education Program	13	19
Volunteers who did not participate in Parent Education Program	8	10

These analyses of parent involvement in classrooms at Rogers School will be used by the teachers in their final report to the state on the School Plan under the SB 90 funding program, and they will be used by Teacher Corps project staff in their final report as well. The data collected for purposes of assessing progress toward the goal of increasing parent understanding of the school instructional program can thus be analyzed and used for different audiences.

Figure 18

Comparison of Parent Volunteer Activity:
number of classrooms in which parents are working

	Number of parents working in a given classroom		
	No Parents	1-4 Parents	5-10 Parents
Fall, 1975	14 Classrooms	4 Classrooms	No Classrooms
Fall, 1976	4 Classrooms	11 Classrooms	3 Classrooms

Project Management

No project documentation should be expected to yield only positive reports. Therefore, it is important that a case study of documentation also illustrate records related to problems encountered in the project. The San Jose State project, as with all Teacher Corps projects, has as a goal the use of collaborative decision making in project management at all levels. One result of the attempt to achieve this goal was that weekly meetings of the site staff have been held to discuss scheduling and to deal with various problems as they arose. These meetings typically were chaired by the associate director, and were attended regularly by the program development specialist, team leader, community coordinator, research counselor and the four interns.

In the first year of the project these meetings were long, but lively, for the problems to be faced were new to everyone on the project, and presented a challenge. In the second year of the project, these staff meetings began to become very dull. People sat around looking sleepy or bored, and rarely offered suggestions when these were asked for. Reports on activities were given, but actual decisions about program activities were being made by planning groups in the various training components, rather than by the site staff as a whole. This problem is illustrated by the minutes of a typically long and rambling meeting, presented in Figure 19.

Figure 19

Teacher Corps Staff Meeting
November 1, 1976
8:00 A.M.

Agenda:

1. Cultural assessment
2. Language testing
3. Multicultural Learning Center
4. Inter-school visitation
5. MAR
6. Math Program
7. Intern training
8. Record keeping
9. Parent groups

1. Cultural assessment:

Katie reported that the interns had met with parents last Thursday at 1:00 for a cultural assessment meeting. The interns are looking into the possibility of setting up a story hour involving folk tales from different cultures. This would probably take place in the learning center.

2. Language testing:

Approximately 10 children have been involved in language testing; about 20 more need to be tested. The interns will meet with Alba to discuss what to do with the results.

3. Multicultural Learning Center:

Manuel reported bilingual multicultural materials are being investigated for the Multicultural Learning Center. The district office, school and city libraries will be checked as possible sources of materials. The parent input from the cultural assessment meeting will be analyzed, written up and a report will be sent to parents. For each child involved in language testing a report of the results will be sent to the parents.

Continued on next page

Figure 19, continued

4. Inter-school visitations:
Lupe reported that last Friday interns from Hoover School visited here and next Friday the Rogers' interns hope to visit Hoover School.
5. MAR:
Tuesday at 1:00 P.M. the Teacher Corps staff will meet with the MAR evaluators. This will involve Greta, Dick, Mike and Minnie.
6. Math Program:
It was agreed that the interns will continue with the intermediate math program this week but it is questionable if they will continue the following week.
7. Intern Training on Site:
Intern training begins Monday afternoon, November 1. Nov. 1-5 Classroom Management/Behavior Modification - Mine, Liz and Brenda. Nov. 8, 9, & 15 Models of Teaching (Rogerian). Other areas not specifically scheduled: proposal writing and problem solving skills and techniques.
8. Record Keeping:
Bev presented a chart entitled "Documentation Training Table." All past, present and future involvements with training are to be entered in the appropriate box.
9. Parent Groups:
Minnie reported that more people are joining the parent cooking and exercise group. There is a conflict with Pat Hanzad's class and the cooking group for Room 36. This will be worked out. The Discovery Club for children has arranged a trip for 25 children to the S.J.P.D.

Greta reported that the curriculum study groups are continuing.
Dick reported that the Family Study Groups are meeting also.
Adjourned 8:56 A.M.

The minutes of subsequent site-staff meetings document the process used in solving this problem, at least temporarily. Excerpts from the minutes of two meetings — November 15th and 23rd are illustrative.

Item No. 1 — November 15th

1. Tuesday, November 23 at 10:00 a.m. we will have a special meeting to discuss what we need to accomplish as a group and to develop a focus for staff meetings. An agenda will be posted on Monday; anyone wishing to place items on the agenda, please do so.

Item No. 8 — November 23rd

Reorganization:

What is accomplished at staff meetings and — what is disliked about staff meetings? These questions were discussed regarding reorganization. It was decided that there will be two meetings involving the staff.

> One, of 15 minutes, will be held for business on Monday from 11:30 a.m. — 11:45 a.m. Wednesday from 11:30-12:30 will be set aside for staff luncheons at which time the staff will share respective activities. The focus of discussion for the next luncheon will be the activities of the interns...

The complete minutes for a third meeting are presented in Figure 20. If the duration and items covered during the meeting of November 1 and January 11 are compared, it is clear that a change has occurred. To demonstrate that the changed conduct in staff meetings continued over time, minutes of later meetings would have to be studied too.

Minutes of meetings in this case were among the data that were used by project managers to assess a problem in procedures. The minutes also provide a record of the decision made to solve this and the effects of that decision.

Figure 20

Teacher Corps Business Meeting

January 11, 1977

11:00 A.M.

Future Social Activities — There will be a party on January 29, 1977 at Mike's house for all those project newlyweds.

Mike has a schedule for class coverage for training sessions for the next two weeks. He will confirm the schedule with the interns.

There will be a meeting Tuesday, January 18 in the multi-cultural center. Interns will present results (preliminary) of their continuing parent survey. Topics will include activities planned for the center for both students and parents and the kinds of data being collected from parents (family, traditions, diet, celebrations...descriptions of the culture as it is lived here). Interns are to clear plans for the presentation with Alba tomorrow as well as questions related to the operation of the center. They are also to check with Alba regarding refreshments for the January 18 meeting.

New parent activities — A letter and schedule regarding new parent activities has been distributed to parents, teachers and Teacher Corps staff.

Minnie reported the following topics currently being considered: 1) Jim has suggested the use of foreign students from Silver Creek in the Multi-Cultural center; 2) the possible role of Rene Cantu here at Rogers School (will be discussed with the faculty); 3) Mt. Pleasant band may present a concert for a school assembly.

Topic for next luncheon meeting — There will be no meeting on Monday, January 17. On January 24, Greta will report on the decision-making study being done here at Rogers School.

Summary

This case study has presented illustrations of the use of various types of records to document progress toward project goals. One goal was selected from each of three project components — the inservice training component, the community component, and the project management component. Relevant records for each of these three goals were discussed and illustrated, and the procedures used in analyzing these records for presentation of information to different audiences was explained. This case study is an example of the type of documentation that results when selections are made from among a variety of options. The documentation plan for this project was generated by project staff members, with input from teachers at Rogers School, under the guidance of a documentation consultant.

The following case study provides examples of documentation as applied to the operation and assessment of a project whose mission is to deliver graduate education in an isolated setting. The emphasis is on gathering data to assess the attainment of explicit objectives set out at the start of the project.

DELIVERY, DOCUMENTATION, AND IMPACT: EVALUATION OF A NON-TRADITIONAL, FIELD-BASED GRADUATE ELEMENTARY EDUCATION PROGRAM— A CASE STUDY

by

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Just as society has pressures for change in each decade based on constituent needs and concerns, so has graduate education undergone scrutiny and revision. Along with new, "innovative" or "nontraditional," concepts and developments, realities face institutions — financial crises, decreasing federal support, diminishing numbers of students in traditional institutions, and increasing public and legislative demands for accountability. These factors, and others, are influencing not only the means of delivering instructions, but also the methods and criteria used to evaluate impact by institutions of higher education. This case study describes a model for documentation and impact evaluation of a field-based nontraditional graduate elementary education program in an economically deprived, geographically isolated, rural region of Appalachia.

Nature of the IHE

The West Virginia College of Graduate Studies (COGS) is a new institution of higher education empowered to confer master's degrees in three areas — Engineering and Science, Business, and Behavioral Studies. Before 1972, there were two institutions in West Virginia conferring master's degrees —West Virginia University located in the far northern part of the state and Marshall University on the western border. The location of these universities and the mountainous terrain made the pursuit of graduate education extremely difficult for residents of southern and eastern sections of the Mountain State.

Thus, in 1972, the State Legislature created the West Virginia College of Graduate Studies to provide convenient graduate education to residents of southern and southeastern West Virginia. To meet this mission COGS has gradually expanded its base of operations beyond the Charleston area and is currently offering courses at numerous sites in the 16 county service area.

Nature of the Model Program

After a year of needs assessment and self-study by the faculty, a model elementary education program was developed. It was first offered to students in the fall of 1974. This new program was designed as a graduate level supplement to the undergraduate training of elementary school teachers, and it represented a major departure from the traditional approach to graduate training for practicing teachers. An explicit set of assumptions about the nature and purpose of graduate teacher education served as the base for designing the elementary education prototype.

These assumptions were considered to be the purposes of the system from which more specific goals, objectives, and strategies were generated. Although the system assumptions are interrelated, they are divided as follows:

Assumption 1.

The curriculum should provide the base of knowledge and skills necessary for teachers to function professionally and independently.

Assumption 2.

The curriculum should provide a disciplinary base.

Assumption 3.

The curriculum should provide a sequential set of experiences.

Assumption 4.

The student should meet minimum admission standards.

Assumption 5.

The curriculum should be designed with measurable objectives.

Assumption 6.

The curriculum should provide some choices in terms of areas of concentration within the disciplinary area.

The curriculum must be implemented in such a way that students can achieve competence in areas congruent with the rationale and purposes of the system. The curriculum goals and objectives specify the desired behaviors. The goals are regarded as an integrated set of related competencies rather than discrete skills or content areas to be mastered. Accordingly, the six goals, beginning with the fundamental competencies and ending with more complex ones, are:

Goal 1: Acquire an in-depth disciplinary base of theoretical and empirical principles on which to base decisions about the learning and development of children;

Goal 2: Develop strategies and cognitive structures for the integration of information and feedback from ongoing experiences and environmental changes;

Goal 3: Develop strategies for obtaining skills and information pertinent to present and projective information needs or decision difficulties;

Goal 4: Develop skills and strategies for assessing the desirability and effectiveness of alternative decision plans based on critical comparisons of outcomes to objectives;

Goal 5: Acquire an in-depth disciplinary base of theoretical, empirical, and practical principles in a specialized area leading to decision-making expertise in that area;

Goal 6: Develop the skills and strategies necessary for appropriate and efficient decision-making by application of scholarly activities in the professional milieu.

Sequentially, this program is divided into four parts.

Part 1 The core of the curriculum consists of in-depth study in research, planning, and evaluation techniques.

Part 2 The curriculum presents an in-depth disciplinary base in the areas of child development and learning through classroom, laboratory, and clinical experience. These experiences should make the students aware of the nuances of behavioral development and the major developments in learning theory and application.

Part 3 This part of the curriculum allows the students to concentrate on their individual interests, a direct reflection of the objectives which recognize the validity of individual interests. Concentrations are offered in the areas of exceptional children, educational psychology, language development, early childhood education, and instructional planning.

Part 4 The final symposium offers the graduate students and faculty a final opportunity to assess the expertise gained by the student during his program of study. A research project in the student's particular area of interest is completed and presented during the final symposium.

Program Delivery

Parallel with the development of any educational program, especially one of a nontraditional nature in a unique setting, come questions of delivery and impact. To address these questions, the COGS Elementary Education Program staff applied for and obtained a 10th Cycle Teacher Corps grant. Beginning in June, 1975, this project — termed the Appalachian Teacher Corps Project — has been delivering, documenting, and evaluating this unique graduate level elementary education program.

Consistent with the missions of Teacher Corps and COGS, the entire Elementary Education Program (a total of 45 credits, 39 on-site) was offered to teachers in a single Appalachian school, Clay Elementary School, Clay, WV. To cope with the constraints of distance (60 miles from the college), geographic isolation, and interfacing schedules, multiple course organizational formats were utilized. Among them were variations in credit hour designations from 1 to 6 hours; time frameworks varying from two weeks to two years; delivery formats including intensive two-week and three-week workshops, traditional single-semester courses, individualized, modular approaches, and independent study.

Further Program Objectives

The objectives of the program may be divided into two general categories, cognitive and practical. The cognitive objectives which relate directly to the knowledge gained or the activities taking place in courses have been discussed above. Added to these is another set of outcomes, just as seriously sought, in the teaching practices of students in the program. These outcomes are assumed to be the behavioral result of a teacher's having attained the cognitive objectives of the academic program. (See Table 7)

Table 7

Practical Objectives of the Model Program

A Master Teacher should demonstrate the ability to:

I. assess the current status of learning for each student.

II. select appropriate materials and instructional approaches and utilize effective planning for instruction based upon acquired data.

III. provide encouragement and guidance to the learner, in accordance with his needs.

IV. make assessments of the outcomes of learning and make instructional decisions based on these outcomes.

V. provide appropriate reinforcement for the student's learning.

VI. exhibit the knowledge, confidence and skill needed for dealing with most of the behavior problems presented by children in the classroom.

VII. evaluate his/her performance based upon empirical data.

VIII. adjust his/her behavior based upon acquired data.

IX. read and use research in his/her specialty and related fields.

X. display a willingness to try new ideas and to experiment in the classroom.

XI. assert his/her professional competencies and educational philosophy.

XII. be a teacher other faculty in the school turn to for leadership.

XIII. accept professional responsibility.

There is a correspondence between the two sets of objectives. The courses were designed to give a teacher the knowledge necessary to perform the practical objectives characteristic of a "master" teacher (one other teachers turn to for help and example). For example, in order to provide appropriate reinforcement for a child's learning the teacher needs to know about learning theory and child development. Many of the practical objectives depend on more than one cognitive objective. For example, the practical objective "assess the current status of learning for each student" demands knowledge of curriculum and instructional planning and of evaluation, with further dependence on knowledge of research, learning, and child development.

Evaluation Design

The two sets of objectives (cognitive and practical) set the focus for the evaluation design, to test whether the teacher graduates of the program possessed the knowledge and skills and the teaching practices which were the objectives of the program. Yet this impact on the teachers was only one of at least three levels of impact which could be identified, the other two being the effectiveness of the program delivery system in itself and the residual effects of the program in the school, on the children, and in the community at large.

The second level of impact is the effectiveness of the program delivery, since adequate delivery is essential to both of the other two impact levels. This can be evaluated by recording the number and kinds of courses offered, the numbers of teachers enrolled, the number of credits received, and the number of degrees awarded. Some measure of quality is also necessary to determine whether the content offered met the standards set in the program guidelines and whether usual evaluation standards were maintained.

The first level is the intended effects on participants, as judged against the program objectives. To evaluate this level requires gathering extensive information on participants, their formal knowledge, their attitudes and teaching practices, and their professional activities.

For the third impact level, which combines effects on students, the school, and the community, data had to be collected from and about people who did not participate in the program. The kinds of variables measured were student achievement, student attitudes, student self-concept, the atmosphere in the school and county school system, and teacher perceptions of the community.

The data for the second level evaluation were available from class rosters, syllabi, official college records, and staff memoranda. For the first and third levels other measures were needed. As much as possible these measures were taken from standard or existing instruments, with some minor adaptations. In most cases a standard instrument was most appropriate, but in other cases an already existing instrument was used because there were neither staff nor resources available to develop the precise measure that would have been most appropriate. The instrument in hand was the best compromise.

The general evaluation strategy adopted was a pre-test post-test design. This general design, however, was complicated by the multiple nature of the intervention since the program was taken by individual courses. The design is further complicated by the fact that teachers took any number of the courses offered in the program. The non-random assignment of participants to courses is another fact that must be dealt with.

Data

A great deal of data is being collected to evaluate the second and third levels of impact. Most of the measures were taken at the start of the project and will be repeated at its end, consistent with the pre-test post-test design being employed.

Five instruments were given to teachers. First is the Minnesota Teacher Attitude Inventory (MTAI) which is designed to measure how well a teacher will get along with students and how well satisfied s/he will be with teaching as a profession. Second is a cognitive examination, a multiple-choice instrument covering the content of nine of the major courses offered in the program. Third is the Purdue Teacher Opinionaire (PTO) which yields ten scales relating to the school, the school system, and the community. Fourth is a teacher biographical and professional activity survey which asks teachers about their academic and professional history and about their reading and activity in professional organizations. Fifth is a teacher self-evaluation rating scale, which gives teachers an opportunity to indicate the ways they teach and the kinds of activities which characterize their teaching and their classrooms.

Three instruments were given to students in the school. First is the Stanford Achievement Test battery (SAT), individual achievement tests given to all children in grades 1-6. Second is the Educational Development Series achievement tests, given by the State in grades 3 and 6. Third is the Student Attitude and Activity Survey (SAAS), an adaptation of an instrument developed by the Utah System Approach to Individualized Learning (U-SAIL). The SAAS measures student self-concept, attitude toward school and various school subjects, and whether or not the students participate in individualized learning activities.

Finally, there were two instruments used to observe teachers in the classroom. One was Flanders Interaction Analysis to observe the patterns of interaction between the teachers and students. The other was a project-developed instrument, the Clay Observation Record (CORE) designed to observe many of the teacher practices designated in the Master Teacher description.

The data from these instruments are being combined with data from course records to build the evaluation file, organized by teachers. With these data, analysis will be performed to attempt to measure the effect of the program and its courses on the teachers who participated in the program and on other populations with which the teachers have contact.

DOCUMENTATION

Demonstration has two general purposes, (1) to show beyond reasonable doubt that a particular program is worthwhile and (2) to get people in education to begin adopting, adapting, and imitating the strategies used in the program. By clearly differentiating these two purposes we can more critically examine the documentation activities required to maintain consistency with the general purposes of demonstration.

This means that documentation efforts would be geared toward gathering and organizing information which will be useful for two purposes: (a) showing how good or bad an intervention is and (b) getting people to change existing programs and practices. A third purpose for documentation is recording events to account for expenditures and results.

Project documentation may be viewed completely as a three-dimensional model. First, there is documentation for each of the management components of the project. For example, the West Virginia Teacher Corps Project has six management components 1) curriculum, 2) community, 3) management, 4) preservice/inservice, 5) multi-cultural, and 6) demonstration. Each component has kinds of information and activities specific to it which will partly determine the documentation strategies and process.

The second dimension is time. This dimension can be determined programmatically from project design or simply be a response to external legal guidelines. Operationally, it usually represents some combination of these factors. As the project advances from initial planning toward final termination, it moves through various stages which affect documentation activities. There might be five of these stages: 1) planning, 2) implementation/operation, 3) evaluation and redesign, 4) reimplementation, and 5) final evaluation.

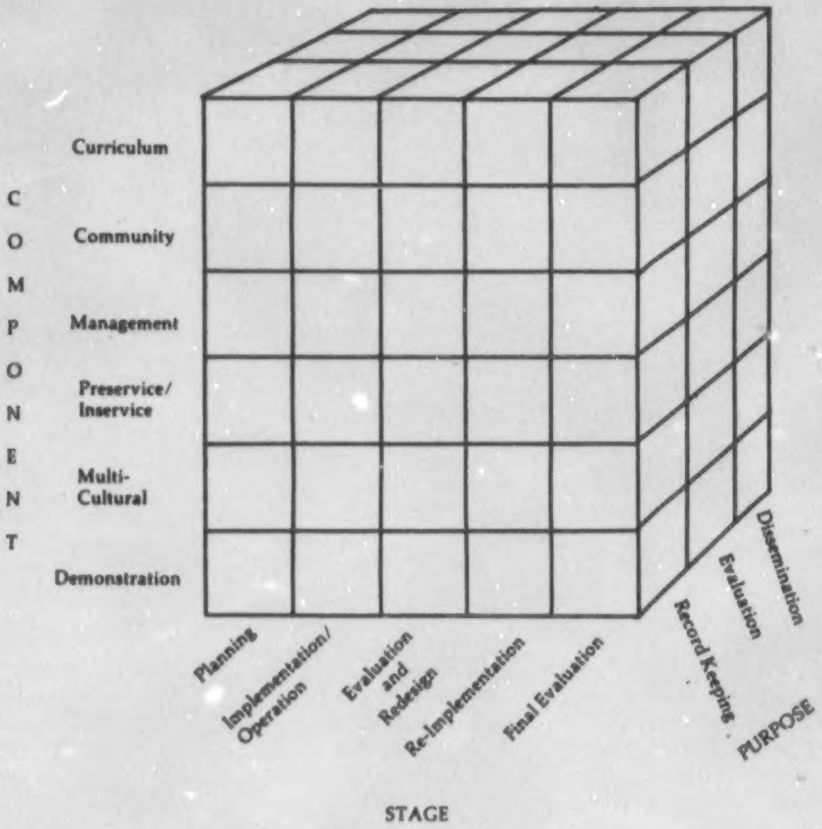
The third dimension of the model is related to the purpose of documentation. There are clearly three purposes of levels of documentation. The first level is simple record-keeping, recording activities so it will be possible to reconstruct exactly what happened during the intervention. The second level is collecting, analyzing, and reporting the information to evaluate each activity in the intervention. The third level is dissemination, recording and reporting information about project activities to get educators to change, i.e., to make an impact on the field of education. The complete three-dimensional model is illustrated graphically in Figure 21.

When documentation is examined according to these three purposes, it appears that record-keeping and evaluation are easiest to study and evaluate. Record-keeping is conceptually simple, although a time-consuming process, gathering information which faithfully records project activities. Memos, minutes from meetings, logs of participants, course records and transcripts are just a few of the activities this might cover. One example in particular might be the number and names of students enrolled in a course on Appalachian heritage. These data would be found in the three-dimensional framework in the cell which is the intersection of the multi-cultural component, the implementation/operation stage, and documentation for record-keeping.

A very good source for this type of documentation is in the business records of the school system and the college. Examples are the order forms and vouchers for materials purchased, vouchers for trips made, and schedules and

Figure 21

Three Dimensional Model
of Documentation


C O M P O N E N T
Curriculum
Community
Management
Preservice/ Inservice
Multi- Cultural
Demonstration
Planning
Implementation/ Operation
Evaluation and Redesign
Re-Implementation
Final Evaluation
STAGE
Record Keeping
Evaluation
Dissemination
PURPOSE

final grade rosters for the courses offered in Clay. The objective here is simply to record what happened.

Documentation for evaluating the impact of the graduate program being delivered to teachers in Clay County is less straightforward. The pre-test post-test evaluation design which has been constructed assesses both direct and indirect impact of the program. One measure of the direct impact of the program is the change in the achievement level of teachers on a test measuring material taught in the COGS elementary education program. An indirect measure of the impact of the intervention is the change in student attitude toward school. Pre-test data from these instruments are useful for planning and implementation. Post-test data for both of these levels of impact might be included in the evaluation level at the final evaluation stage of the demonstration component.

Each project component should be evaluated at each stage along the way. At some stages and for some components the only possible evaluation may be analyzing records of activities to hypothesize what improvements might be made and trying again. For example, the community component contained a parent involvement program. There were continuous efforts to find a combination of time, place, and format which would involve the greatest number of parents.

For the third purpose, documentation for dissemination, for decision-making, for influencing educational policies and practices, less is known and little help is available to direct the process. This purpose of documentation goes beyond that of convincing an audience that an intervention, in this case an innovative graduate program, is good and effective. Documentation for dissemination is collecting and presenting data to persuade an audience to adopt a like intervention. Thus, objective data, e.g., changes in teachers' cognitive knowledge or changes in student attitudes toward school, may be a necessary part of documentation for dissemination but they may not be sufficient to persuade an audience to accept the intervention.

Documentation for dissemination more probably demands subjective data which will argue persuasively for adoption of the demonstration, i.e., testimonials from teachers and administrators involved in the program. The Appalachian Teacher Corps Project collected data from teachers on their perceptions of the project at the end of its first year. Typical questions to which the teachers responded were: (1) What beneficial changes took place in Clay Elementary School as a result of the Teacher Corps Project? (2) What has personally been the highlight of the project for you? (3) How have the courses you have taken influenced how you teach or what you think about teaching.

In order to document adequately the demonstration of the COGS elementary education program, the Appalachian Teacher Corps Project is carrying out its documentation with three purposes in mind: 1) record-keeping—recording activities that occur, 2) evaluation—to test whether the program was worthwhile, and 3) dissemination—to persuade others to adopt the intervention. These three documentation strategies form a complete model of documentation.

Results

Since this case study is prepared before the two-year program cycle has been completed, there has not yet been time to assess some of the major expected outcomes. Objectives were defined for producing impact on what teachers would know (cognitive) and on how they would conduct their classes (practical). The data necessary for deciding whether these objectives were met are being collected. These data will make possible a complete review of both the objectives and the content of the graduate program. At present, tangible results are restricted to the systems which have been set up to manage and evaluate the program and the immediate academic effects of the delivery of the program.

One of the tangible results is that an accredited master's degree program has been offered to school teachers who would otherwise be economically or geographically deprived of the opportunity for graduate study. What was offered was not an occasional extension course or collection of courses but a complete graduate program. With Teacher Corps support, over the two-year grant period the 39 credit hours leading to a master's degree in Elementary Education were offered in Clay Elementary School, a convenient location for teachers in Clay and surrounding counties. Mean enrollment in each three-credit course was approximately 15 teachers. At the end of the program ten teachers received their master's degrees.

Another immediate result was solving the logistical problems inherent in delivering a graduate program at a remote site. This process necessitated defining course objectives more precisely so that methods of presentation and organization could be adapted to the particulars of the situation, and to the availability of faculty and resources. Once objectives were specifically defined and related to course activities, in many cases a modular approach could be taken to a course and new course formats could be used. For example, some courses which were usually taught in a standard three-credit format were successfully broken down to independent one-and two-credit courses.

The detailed long-range planning for the program resulted in a very detailed list of goals, objectives, strategies, and evaluation measures. The detail of the design strategy provides a model which can be investigated minutely, once appropriate data are available. Each level in the model may be investigated and each of the theorized junctions may be tested.

The data which are being collected for project evaluation also form a file which provides feedback for program review. The data permit the process of review to begin. The data indicate which program strategies have been used and which objectives, cognitive and practical, have been attained. Although not enough data for a complete review can be collected from a single site, the review process is underway. The objectives of the program core have already been scrutinized, and the sequence of the objectives has been rearranged.

Summary

There is no substitute for good planning and conceptualization. The broadly stated project goals must be translated, as much as possible, into specific measurable objectives. A good conceptual framework will indicate documentation and evaluation strategies and help streamline the choice of appropriate instruments and measures. Conceptually simple direct measures are often politically acceptable to project participants, and certainly they are easier to interpret, more understandable for non-technical people, and have a greater chance for impact on schools and other institutions.

DISSEMINATION

Dissemination, which is discussed here, and diffusion, which will be discussed in the next section, have much in common. Unlike documentation, which describes what was done at the project site, dissemination and diffusion focus upon a new location and population. There are some similarities and differences in the purposes of dissemination and diffusion that should be discussed prior to addressing dissemination alone. Some of the similarities between dissemination and diffusion include that:

1) the consumers of both efforts are somewhat unknown,
2) both efforts would be directed toward user needs,
3) the products need to be generalized to other audiences rather than specific to the sponsoring site, and
4) the products would be evaluated in terms of their effectiveness for the audience.

While similar in many ways, dissemination and diffusion also differ. Fundamentally, dissemination is an activity grounded in the demonstration activity with the dissemination designed to inform others about it. Dissemination includes activities for purposes such as reporting to a funding agency, informing others for the purposes of decision or policy-making, reporting to colleagues or participants (**Introspect**, the newsletter of the Research Adaptation Cluster, serves this function), adding to the body of professional knowledge, or contributing to what Teacher Corps Director William Smith calls the "Journal of Negative Findings." On the other hand, diffusion is designed to enable others to do something anew, to provide them with the knowledge and skills necessary to implement an activity at their site. Diffusion starts from the new site, its needs, participants, and constraints. The focus is upon a new set of activities in a new location.

Here we will describe those activities involved in dissemination, leaving to the following section a fuller discussion of diffusion.

Normally, when persons do dissemination it follows after development and demonstration activities. Thus, one is inclined to include in the material disseminated that which was important in the processes of development and demonstration. Frequently, this amounts to a report on what was done at the home site. What we are suggesting is that it is the wrong (or at least inadequate) perspective because it does not start from the needs of the consumers, those to whom you are disseminating. The difficulty, of course, is that one does not know a lot about those to whom one is disseminating. But unless the conditions and needs of those who are the consumers of the dissemination are taken into account, the disseminated material may be irrelevant. It tells what you did (Documentation) but it fails to enable others to utilize it for their purposes in their situation. Of course, this is somewhat of an exaggeration. A good description of a project, in its own terms, may be useful to others who are willing and able to "translate" it into their own situation. What we are striving for here is to reduce the need for translation, or at least to make it easier.

Having set the "problem" of dissemination, it is appropriate to suggest possible ways to address it. A starting point is to look at the description of the

Development and Demonstration activities (Documentation). Generally, such a description will include a discussion of what was done and how. Possibly, there might be included a discussion of the problems encountered and the steps taken to meet them. One way of representing this is as a set of five columns:

What was done **How it was done** **Problems encountered**
Strategies **Achievements**

Depending upon the fullness and clarity of the presentation (and the abilities of the reader) such a presentation may allow others to translate the original experience into their situation. To make such a presentation more useful to the consumers of dissemination, we suggest the addition of at least two other columns. The first should identify the "lessons learned" from the experience, while the second teases out the generalizable principles. These principles can be elaborated for particular contexts. It may be useful to illustrate these notions with an example drawn from the Community School District 5 (New York City) Queens College project. (Note: a central objective of the project was the establishment of programs where children learned by teaching each other, including cross-aged tutoring where children from one grade worked with those at a lower grade).

What was done—Tutoring dyads were established between pairs of volunteers at differing grade levels.

How it was done—A series of opportunities were provided which enabled teachers to work together as a way of encouraging cooperation.

Problems encountered—Two problems were the structure of the school schedule which made opportunities for teachers to meet together difficult, and the ethos of the school was one of each teacher tending to his/her own classroom.

Strategies—To meet the problem of time, project staff carried out a series of activities to "free up" teachers to meet, and the principal was encouraged to use a portion of the regularly scheduled faculty meetings for such purposes. As to the ethos of isolation, the project initiated activities which brought teachers together including courses provided by the college which were held at the school and conducted in a manner aimed at encouraging teachers to share experiences and identify ways in which they could work together.

Achievements and Products Produced—One would indicate here what was accomplished, how teachers and teaching changed, how the students were affected. Additionally, the products (materials, video-tapes, manuals, which were produced), would be listed. The project, at this writing, is still in its first year.

Lesson Learned—Teachers are willing to work together although that is counter to their preparation, previous experiences, the way the school is organized, and the way the curriculum is presented.

> **Generalizable Principles**—The encouragement of new ways of relating between and among teachers is difficult but possible. A factor is the intervention of an outside force to precipitate it. Second, there must be something about which they can relate. Third, administrative support and leadership and willingness to be flexible is key. Fourth, where such patterns of relating are already present they can be a base to build upon (although beware of the development of cliques). And, fifth, where a teacher organization is present its support for such collaboration is important.

Whatever the particular model of dissemination developed, the key point is the need to recognize that dissemination activities must be developed focusing upon the needs of their users and not the needs of their producers.

The chapter which follows has been prepared to disseminate ideas about gaining school/university collaboration. It includes specific questions for interested readers to answer while considering adopting or adapting the ideas. It also suggests activities for potential adopters.

LET'S WORK IT OUT TOGETHER: AN ALTERNATIVE PATTERN FOR SCHOOL & UNIVERSITY COLLABORATION

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How often one hears teachers depict university professors as lacking in knowledge of the "real world" of public schools, as disdainful escapees from public school life—or even worse—of having never worked in the schools, as operating from a distant and calm world of research and theory-building. And often one also hears university people describe school personnel as being uninterested in and unaware of new information from research, as content to operate on the basis of training and predispositions acquired many years earlier, operating school programs solely in response to day-to-day pressures. These extreme stereotypes indicate a need to open the flow of useful communication between public school and university, to decrease the distance between the two institutions and, most importantly, to increase the effectiveness of both in improving public school education through inservice and field-based research.

A possible explanation for the lack of school-university collaborative efforts, even though teacher and professor share many common interests, is the remarkable lack of alternative models for such collaboration. Traditional patterns have been limited to student teaching supervision, field research and consultant services. Frequently, such relationships have been weighted in favor of the needs of one or the other of the institutions and thus have been limited in their capability to promote the development of a mutually supportive collaborative process which serves equally the related needs and interests of both the school and the university.

The Work/Study Team is an alternative pattern for school/university collaboration. It was implemented as a major component of the Teacher Corps

Project, sponsored by Herbert Hoover Junior High School, San Jose Unified School District and the School of Education, Stanford University. The following sections offer: a) a brief description of the organization and operation of the Work/Study Team, b) examples of its problem-solving capabilities, c) an assessment of the first year of operation of the teams, d) identification of some of the model's limitations. For those to whom the model holds promise or appeal, a brief outline of specific necessary steps in the organization and use of a Work/Study Team is included.

Organization and Operation. The primary task of the Work/Study Team is the development and implementation of solutions to school-site problems. Teams may be oriented to specific subject matter areas or they may deal with issues of concern to teachers in several content areas. During the first project year, eight Work/Study Teams were in operation: Mathematics, Language Arts, Social Studies, Physical Education, Multi-Cultural, Bilingual, Open Space and Community Involvement. Membership in each team included teachers, administrators, instructional assistants, intern teachers, professors and graduate research assistants.

The efforts of the Open Space Work/Study Team in working to solve an immediate, significant problem illustrate the basic problem-solving approach envisioned in the concept of the Work/Study Team. The entire school staff and university participants in that team worked together to define and solve a pressing problem. Their work exemplified key steps in problem solution: assessing needs, defining problems, setting priorities, reviewing related research and practitioners' experience, developing solutions, obtaining support from relevant groups, implementing likely solutions and evaluating their effectiveness.

The Open Space Work/Study Team was organized to deal with problems anticipated by the move from traditional, self-contained classrooms to a new open space shcool. New building design called for Language Arts and Social Studies classes to be conducted in one central open section surrounding the media center; math teachers were to share a common area for instruction. First, the Open Space Team set about to assess what faculty members predicted would be key problems in the transition to the new building. The problems were organized into three categories of priority concerns: noise and discipline, student movement and the media center, student and parent orientation to the open space school.

The university faculty advisor and research assistant reviewed research on open space schools and visited several local open space schools, observing and interviewing teachers, students and administrators. They then compiled short summaries of research and practices in open space schools in each of the three categories of anticipated problems. They also identified practitioners they had visited who could provide useful information about successful practices elsewhere. Subsequently, the Open Space Team reviewed the literature and practice summaries, selected consultants from among the recommended outside teachers, and, with these practitioner-consultants, conducted inservice sessions for the entire school staff.

Research literature and consultants confirmed the teachers' concerns. What seemed to be critical for students and teachers in the initial stages in the open setting were the need for uniform attendance accounting and specific rules for student movement between teaching areas. The Open Space Team decided that a limited-but-explicit set of "rules" and procedures for open space needed to be developed and agreed upon by the entire faculty.

The Open Space Team organized themselves into three subcommittees, each responsible for proposing recommendations in one of the three areas of priority concerns. They used the summaries of research and priorities plus the information they acquired during the inservice sessions to develop their recommendations.

An important step in the work of the Work/Study Teams was obtaining the support for the proposed rules and procedures from relevant groups (e.g., administrators, faculty, parents, students). Parent and student input on the tenative rules was sought by means of parent workshops, a special open house and presentations on open space in each social studies classroom. Each subcommittee presented their recommendations to all the members of the Open Space Team. The team prepared a single list of rules and procedures which they presented to the faculty; after considerable discussion and revision by the faculty, a list of basic rules was accepted by the entire faculty. All of these steps were completed approximately two months prior to the move to the new building.

Two final steps in the problem-solving procedure were the implementation and evaluation of the solution. Because the move into the new building was postponed until mid-May of 1976, when only four weeks of the school year remained, it was not possible to evaluate rigorously either the degree of effectiveness or the degree of implementation of the "rules." A general school staff impression is that organized and consistent policies helped in promoting a rather smooth transition to the new building.

Benefits accrued to the university, too. Dialogue with the school staff permitted university staff members to match their efforts and resources with actual school needs. Research projects of real potential benefit to schools were undertaken, e.g., the graduate research assistant for the Open Space Team is now completing a dissertation dealing with teacher coordination in open space schools. The university faculty advisor for the Open Space Team has been able to continue to expand one of her research interests, collegial evaluation of teaching, and has conducted a college credit inservice course for the teachers on collegial evaluation— an especially useful program for teachers working together in the open space school. Based on the information they collected for the school staff, the faculty advisor and research assistant have also published two articles for a practitioner audience, "How to Survive in the Open-Space School" and "How to Succeed in Team Teaching—By Really Trying."

Assessment. How well has the Work/Study Team model delivered? Evaluation would seem to be a two-step process involving assessment of how well the teams function in their collaborative efforts and—ultimately—the degree of impact the Work/Study Teams have in effecting change.

Learning to draw on each other's strengths, to trust, to carry on a dialogue between people from extremely different work situations is in no way an arid, lock-step or formula process for problem solution. A process that looks neat and systematic from a distance, involves a great deal of improvisation, judgment and creativity. The interpersonal dynamics found in any problem-solving group were also apparent in the Work/Study Teams.

Open Space, Mathematics, Physical Education and Language Arts Teams

160

evidenced a consistency of member participation, a year-long productive existence, commitment and involvement of members and a collaborative success in achieving goal direction and attainment. Many useful school projects were undertaken and completed, e.g., mathematics curriculum changes, development of open space procedures, more individualization of the physical education classes, the development of team teaching strategies in language arts. But even these teams experienced problems along the way: goals turned out to be not as desirable as originally thought and goal attainment left the group with no further purpose.

Two of the remaining four teams held together through the year, though participant satisfaction was low, attendance inconsistent, and, in the end, little was produced in the way of measurable or tangible products. Eventually, two teams effectively disbanded before the end of the year for lack of support or interest, though not before planning and proposing new ways their agenda could be addressed during the coming year by the surviving teams.

For its part, the university staff had an opportunity to assess the practicality of ideas and theories and to participate in the complete process of development of an idea from research to its implementation in school practice. The first year certainly led to the development of ideas and suggestions for new directions in inservice program development and the identification of some practical concerns for educational research.

The impact of the Work/Study Teams on participants, students, programs, community and district personnel has been only partially evaluated. We do know that new instructional procedures have occurred in curriculum, testing, use of evaluation and research, use of classroom space and resources. We plan to evaluate the impact of the Work/Study Teams on students (achievement and attitudes), teachers, university (preservice and inservice programs), community (participation, satisfaction, knowledge of the school) and on the district (replication of the Work/Study Team model, changes in curricula or instructional procedures.)

The positive experiences of the first year suggest that collaboration is possible, but that there needs to be recognition of certain ground rules by both parties. First, final decisions must be made by the school people. They, unlike university participants, have long term and legal commitments to students. Second, the collaborative relationship can be unsettling to one's established role and reputation; time in which to develop mutual feelings of trust and security is required. Third, there must be a willingness to assume new roles. The well-known scholar is an untested commodity in the world of the school. It seems to be a fact of the relationship that university people must participate in some manner of classroom life, be doers as well as talkers. The teacher has to become a seeker as well as a dispenser of information, be receptive to new information, feel a need for professional development. Finally, it seems that the best start in collaboration is made through small steps which address concrete, immediate problems; the more successful and useful school projects undertaken during the year demonstrated that the Work/Study Team's capability to do just this is one of its greatest strengths.

Limitations. Along with the feasibility and strengths of the Work/Study Team model, some of its limitations in developing collaboration have been recognized. First, the Work/Study Team requires a long period of time for developing adequate working relationships, trust, credibility. Second, the teams are subject to a varying capability for handling competing, conflicting goals and this seems to be a function of the blend of personalities within the team. Third, as a means of staff development, teams so far seem limited to the perceived needs of school staff and have a limited capability for stimulating recognition of staff development needs not already perceived as needs by the participants.

Conclusion. The Work/Study Team does seem to hold promise as a model for strengthening the ties between the school and the university. Hopefully, its development will encourage ideas for the development of still other models for school-university collaborative efforts.

Many specific details of the actual organization and implementation of the Work/Study Team have been discussed elsewhere.[1] For those readers who may find the model appealing, a set of "HOW TO DO IT" guidelines for developing a Work/Study Team, based on our try-out of the model, follow. Whether the Work/Study Team model may be useful or feasible for a particular school site and staff depends on the answers to a number of questions. We have attempted to outline the kinds of questions and considerations that need to precede the formation of a Work/Study Team in "Is a Work/Study Team For Your School Staff?" More explicit statements of the requirements and details of Work/Study Team operation are made in "How Do You Start a Work/Study Team?" and, "Becoming and Remaining Effective."

(See corresponding charts)

IS A WORK-STUDY TEAM FOR YOUR SCHOOL STAFF?

1. You should have a problem or cluster of problems shared by at least three people working at the same school site. If you, your colleagues, the students and the community are quite content with your current situation and perceived no important problems, you don't need a work-study team.
2. The problem should have the following characteristics:
   a. Be specific and concrete enough to be capable of solution. (How to motivate kids is much too general; how to keep the lowest third of the students in your reading classes satisfyingly engaged and learning is about the right level of specificity.)
   b. Be beyond your current capabilities to solve alone, without assistance.
   c. Be capable of being solved or at least lessened by study and thought leading to a tentative solution which can then be tried and assessed.
   d. Be widely recognized by those most directly involved and affected as a problem and an important one.

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[1] If you are interested in more information about the Work/Study Team concept request "The School and University Work/Study Team" by Hagberg, Walker, Fitzgerald, McFarren, Nolan, Pence, Roper and Schneider. Also, "Down From The Ivory Tower: A Model of Collaborative Inservice Education" by Roper and Nolan; from Publications and Dissemination Unit of The Stanford Center for Research and Development, School of Education, Stanford University, Stanford, California, 94305.

   e. Be substantial enough that it requires at least a significant part of the school year to resolve. (Briefer efforts are not worth the trouble of developing the many working relationships involved in a work-study team.)
   f. If solved, improve the education or the educational opportunities of the students in your school.
3. Do you or others involved already have what you are convinced is a solution to the problem? If so, you may wish to mount a work-study team to deal with the problems of implementing your solution on a trial basis and evaluating your efforts.
4. Can the problem be solved in any easier, less time-consuming, more direct, and less costly manner? In particular, can it be solved by:
   a. Hiring an expert as a short-term consultant, to help you find a solution.
   b. Holding a series of school or departmental planning or action meetings on the problem.
   c. Reading a book or article on how others have dealt with the problem.
   d. Enrolling in a course or undertaking some other kind of formal study.
5. Are the outside resources (i.e., expertise, skill, knowledge) available to be incorporated into your work-study team? (If the nearest specialist on hearing problems is 200 miles away and too busy to work with you, a work-study team that needs this expertise is not viable.)

HAVING DETERMINED THAT A WORK-STUDY TEAM IS FOR YOU, HOW DO YOU START ONE?

1. Speak informally with persons who will need to be a part of the team, present the problem as currently understood, demonstrate your interest and the interest of others involved in collaborating on work toward a solution, and size up the degree of their enthusiasm.
2. If this informal review shows widespread interest and support, identify a small, manageable group (3-7) of most interested, excited, committed people to serve on a work-study team planning and organization committee. (Don't exclude any really interested people, but don't seek out hesitant or lukewarm supporters at this stage.) Let each member of this committee accept responsibility for leadership, initiative, and effort in their own defined areas of responsibility. For example, one person might interview possible university collaborators; another might talk with the principal and relevant members of the central office staff; another might work on budget and sources of funds, etc.

Do not proceed to the subsequent steps without reasonable confidence you will be supported and assisted by others most directly involved and affected.

3. Draft a tentative agenda for the work-study team, emphasizing tentative; encourage others to add their own suggested items.
   a. List the major tasks that will need to be accomplished.
   b. Place major tasks on a time-line to indicate the extent of sustained effort called for.
   c. List "What's in it for — " (teachers, students, university professors, community volunteers,...all whom you expect to serve on the work-study team and all whom you expect to be directly affected by it.)
   d. List "What it will take from — " (teachers, etc., as before) so that everyone will see what kind and scale of effort is required of them so they can judge whether they are willing to pay the price.
4. Determine what sort of outside expertise you will need.
   a. Make appointments with nearby specialists (from the central office, local universities, other agencies) mailing your preliminary documents in advance.
   b. Discuss with them how to get the expertise you need.
      1. Are there books or papers you should read and study?
      2. Are there courses you should take?
      3. Are there certain experts you should consult regularly? Would they be willing to consult with you from time to time?
5. Once your tentative agenda has been revised to gain support of those who will constitute the work-study team, you are almost ready to begin. What you need now are clearance and access to the necessary resources.
   a. Get clearance first from your principal. You can ask for either released time to be made available to those most centrally involved or for extra pay for work after school hours. If you wish to donate your time, be sure to point out that you are making this investment and ask for help in getting the other resources you need to carry out your work.
   b. You will find the really essential resources are usually small, at least in the beginning. Once you have a success to show for your low-budget efforts, you are in a stronger position to seek funds elsewhere.

BECOMING AND REMAINING EFFECTIVE

1. Attend closely to vital details.
   a. Time—if key participants have trouble finding time to do what is required of them, consider this a most serious problem and address it directly. Do whatever is necessary to get the time you need. For example, you may schedule common prep periods for members of the work-study team, revise school schedule to leave last period free for work-study team business, request administrators or substitutes to cover classes for regular meetings.
   b. Money—if you are truly unable to proceed with important parts of your work without more money, assign someone to seek funds. This person should become familiar with funding sources at the district, state and federal levels and may need the assistance of a grants expert.
   c. Routines—
      1. Schedule regular meetings so you don't have to use vital time and energy finding a meeting date at each meeting.
      2. Prepare agenda for each meeting to insure task relevant behavior; distribute prior to meetings. The agenda should be short enough so that all items can be discussed at the meeting.
      3. Provide time on your agenda for periodically raising new business, unscheduled matters, so the agenda doesn't wind up running you.
      4. Keep records of the actions you've taken and your progress or lack of it. A work-study team notebook in which all decisions are recorded seems to be more useful than minutes from every meeting.
      5. Establish team policy on matters that come up repeatedly so you don't have to waste vital time in meetings.
2. Distribute leadership responsibilities and assign them clearly—specialize!
   a. If your work-study team is large (over four members), you should consider electing a permanent chairperson or rotating chair responsibilities among members every month or quarter.
   b. Regardless of your decision to appoint a permanent or rotating chairperson, you will need several task leaders (e.g., someone to arrange for consultant selection and visits, another to negotiate with administrators, still another task leader may be in charge of ordering all materials needed for your efforts). Appointing task leaders helps distribute responsibility as well as save time and effectively utilize individuals' interests and talents.

   c. Once a task is assigned to a specific individual, set a date for completion and include a report from the task leader on your agenda.

3. Do what you can to maximize everyone's incentive to participate.
   a. In addition to the basic incentive of intrinsic satisfaction, college credits and/or district salary increments can frequently be arranged for ambitious projects.
   b. The chance to travel to a nearby school or university as part of work-study team business will be rewarding to many.
   c. Use your imagination and be alert to discover what participants find rewarding.
4. When you've accomplished your objectives as well as you think you can, QUIT! GO OUT OF BUSINESS. If there is more business ready at hand, organize another team to go after it. The reshuffling will permit those who are tired to sit one out and encourage fresh, enthusiastic involvement; it will guard against staleness and empty ritualism; it can magically create another "honeymoon period" of excitement and anticipation.

The following chapter describes a diagnostic/prescriptive procedure for use in teaching fundamental mathematics. It provides a rationale for the model which has been developed and includes illustrations of how it is used. Readers interested in using the system would need activities of the types described in the section on Diffusion.

TASK-PROCESS INTEGRATION MODEL FOR DIAGNOSIS AND PRESCRIPTION IN MATHEMATICS

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The rationale for, and description of a model for planning diagnostic and prescriptive instruction in mathematics is presented in this paper.

The literature on diagnosing and prescribing in educational settings contains many critical reviews of current theories, models, and methods. The controversy encompasses many definitions, models, and theories. We recognize two main theoretical models, ability training and task analysis. In the ability training model the purpose of diagnosis is to identify processes or abilities (such as visual or auditory discrimination) that are strong or weak in the learner in order to prescribe remediation. Here the teacher has two options, either teach to a learner's strengths or remediate his/her weaknesses. Advocates for this model are generally found in the area of exceptional child education. This model relies heavily on tests such as the ITPA, Frostig, Wepman and WISC. Although the rationale of the ability training model may be sound, there are a number of questions raised by critics. These questions focus on:

1. the operational definitions of the subareas in which children's abilities have been divided (Mann, 1970);
2. variations in the reliability of validity data of tests measuring these abilities (Nunnally, 1967);
3. the lack of research data to support the notion that remediating a child's underlying abilities enhances the learning of classroom tasks. That is, no evidence exists that indicates that increasing a child's auditory discrimination will facilitate mathematics learning (Yesseldyke and Salvia, 1974).

The other model, task analysis, is more content or discipline oriented. In this model assessment of academic skill development and instruction are designed to move the child from where he is to where we desire him to be in the academic skills hierarchy. The emphasis is on component skills and their integration into complex terminal tasks rather than the processes that presumably underlie the development of specific tasks. The terminal task is analyzed into the prerequisite components. Components are further divided into essential subcomponents.

The task analysis model has appeal for educators since the structure of the discipline aids the building of hierarchical relationships. There is some research data that supports the task analysis model (White, 1973); however criticisms of this model are:

1. undue emphasis on the analysis of subject matter to the neglect of the analysis of the learner (Frostig, 1972);
2. many subjects have been observed to behave in ways that do not fit the proposed hierarchies (Gagne and Paradise, 1961; Kolb, 1967, 1968; Olsen, 1968; Resnick, 1967; Resnick and Wang, 1969);
3. the analysis of content into prerequisite components necessary for the establishment of hierarchical relationships is difficult (Ford and Meyer, 1966);
4. there is no test of hierarchical dependence which takes account of errors of measurement, subsequently, no meaningful quantitative conclusions have been reached about the validity of even one step in any hierarchy (White, 1973);
5. little direction for prescribing remedial activities other than manipulation of subject matter content has been given.

The task analysis model is valuable in that the diagnostic findings rely on fewer undefined variables and unvalidated assumptions. It focuses on tasks in a curriculum hierarchy with subsequent instruction defined in relation to the learner's position in that hierarchy.

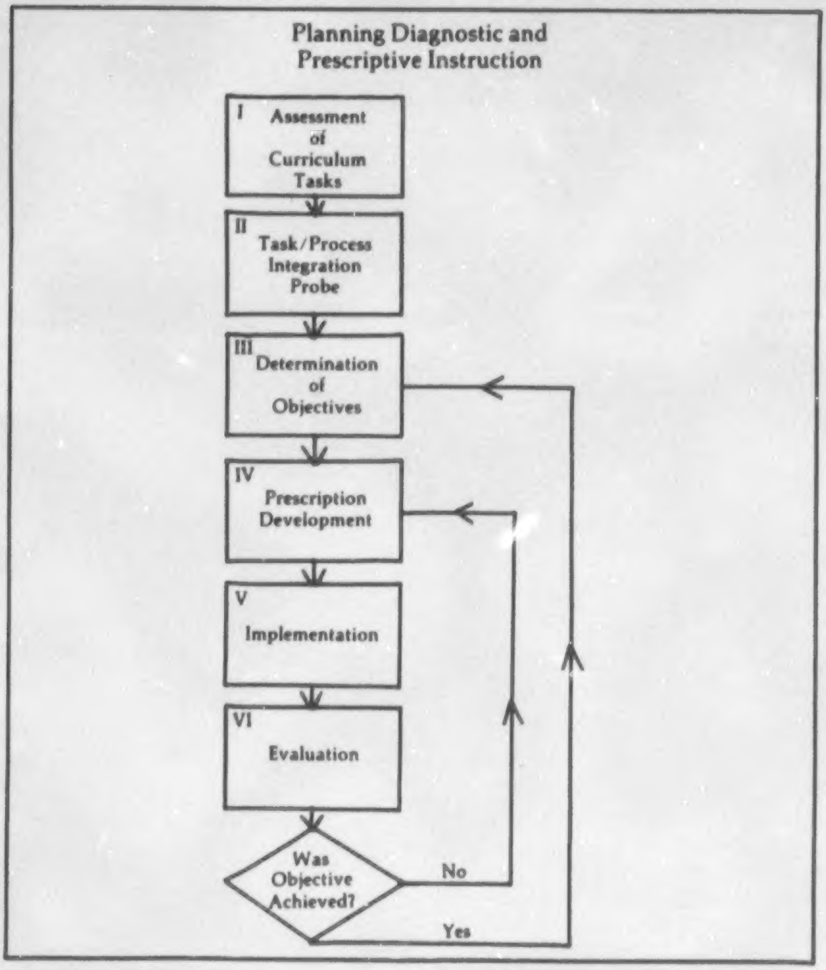
We chose a synthesis of the ability training model and the task analysis model. We have assumed diagnosis to be assessing the state of the learner with respect to specified criteria, and prescription to be the systematic manipulation of those criteria to bring about desired learnings. Figure 22 presents a flow chart overview of the model.

In Phase I **Assessment of Curriculum Tasks**, the objective is to identify problem tasks the learner is encountering in mathematics. That is, in this phase a diagnosis is performed to determine the mathematics concepts that a child has or does not have. The assessment is begun by administering a standardized test such as the **Stanford Diagnostic Arithmetic Test** or the **Key Mathematics Test** to the learner. A more thorough assessment is continued with teacher-made tests that are developed according to the task analysis model. Standardized tests identify general problem areas and teacher-made tests specific problem tasks. Following the assessment phase is the **Task/Process Integration Probe** (Phase II). Here the objective is to define a child's learning style with respect to a specified set of variables. Probes focusing on both task and process variables concurrently represent a synthesis of the two models. A criticism of the ability training model is that underlying processes examined were difficult to relate to classroom tasks. In Phase II process variables are examined using classroom tasks in mathematics. Phase III **Determinination of Objectives** and Phase IV

Prescription Development relate directly to the data collected in Phases I and II. In Phase III objectives are formally stated, and in Phase IV prescriptions are developed by systematically manipulating variables such as method, stimuli conditions, and/or response modes. Once objectives are stated and prescriptions for those objectives developed, one moves into Phase V **Implementation** and VI **Evaluation**. When it is determined in Phase VI that an objective has been achieved by the learner, one loops back to Phase III for another objective. If the objective is not achieved by the learner, the loop is to Phase IV to develop an alternative prescription.

The following is a detailed description of Phases I-IV of this diagnostic and prescriptive instructional model.

Figure 22



Planning Diagnostic and Prescriptive Instruction

I Assessment of Curriculum Tasks
II Task/Process Integration Probe
III Determination of Objectives
IV Prescription Development
V Implementation
VI Evaluation
Was Objective Achieved?
No
Yes

Phase I Assessment of Curriculum Tasks

The objective of this phase is to identify specific areas of difficulty that the learner is having in mathematics. The basic tool that the teacher uses to achieve this objective is a mathematics taxonomy. The mathematics taxonomy used is presented in Figure 23. The taxonomy focuses on number concepts rather than geometry or measurement. The vertical dimension of the taxonomy contains categories which describe a set of numbers that a learner would encounter in studying school mathematics. This dimension is hierarchical in nature as one moves across the categories from left to right. For example, in elementary school the child is usually introduced to sets of numbers in the following order: whole numbers, non-negative rationals, integers, and rationals. The horizontal dimension of this taxonomy contains categories which describe elements of a number system. This dimension is also hierarchical in nature. Before one can fully appreciate the meaning of the operation of addition on whole numbers he/she must first know something about number concepts, relations among numbers and notation. The categories within the horizontal dimension can be partitioned into subcategories as necessary.

It is not intended that the reader gain a working knowledge of this particular taxonomy, but understand its use in this phase of the model. Here the taxonomy has two purposes: 1. the general evaluation of the assessment tests to be used and 2. the development of a mathematics profile showing results for an individual learner. Both of these purposes are achieved through taxonomic classification of test items.

When a standardized test is selected, all the items on the test are classified according to the mathematics taxonomy. For example, an item purporting to measure notation involving whole numbers would be classified W 3.200. An item designed to measure relations among non-negative rationals would be classified N 2.000. After all items are classified, an initial evaluation of the assessment instrument is completed by filling in the grid in the mathematics taxonomy with either plus or minus signs. If items measuring whole number concepts are found in the assessment test selected, a plus sign would be placed in the appropriate box in the grid. If the assessment instrument did not measure number relationships among non-negative rationals in a sufficient way this is indicated by a minus sign in the appropriate box in the grid. When the initial evaluation of the test is completed, one must determine if the test will suit his/her purposes. It may be necessary to supplement the original assessment test with additional items.

Once the assessment test is in acceptable form, a mathematics profile is built. The profile is designed to help summarize the results of the assessment for an individual learner. The mathematics profile used is illustrated in Figure 24. The items comprising this particular profile were taken from the Key Mathematics Test and the Stanford Diagnostic Arithmetic Test. Key Mathematics items are labeled A-L; Stanford Diagnostic Arithmetic Test items are labeled S. Each individual item is also followed by an ordered pair which relates directly to a specific aspect of Phase II Task/Process Integration Probe. Items are classified as clustered according to the Mathematics Taxonomy.

Under each cluster, space is provided for describing specific difficulties that the learner is having with that particular cluster of items. Profiles are marked as follows:

1. items missed are circled,
2. items not administered will have a line drawn through them,
3. items that are correct are left alone.

The profile presented in Figure 24 is marked in this manner. Both problem tasks or entire areas of difficulty are identified by using this profile technique.

Phase II Task/Process Integration Probe

In Phase II, the teacher conducts probes on specific difficulties that are identified in Phase I. The teacher plans and implements these probes with the help of TIP sheets (see Figure 25). The specific difficulty is listed at the top of the TIP sheet and its mathematics taxonomy code is placed in the box to the left. For example, Place Value-Whole Numbers might be listed on the line and the code W 3.200 in the box. Items measuring place value that the child missed on the assessment test can also be listed.

The matrix on the TIP sheet is used to define a child's learning style. The matrix has two dimensions to allow the teacher to classify the stimulus conditions and response mode of any task that is presented to the learner, using ordered pairs that appear in the form (S,R). For example, item A17 (see Figure 24) which measures place value (W 3.200) is followed by the ordered pair (12,6). This indicates that item A17 would be placed in the matrix under stimulus condition 12 by condition 6. Similarly, item B3 (13,5) can be placed in the matrix in the cell which represents the intersection of stimulus conditon 13 and response condition 5.

The categories included in the stimulus dimension of the matrix are derived from a system called FACT (Uprichard and Ober, 1971). The categories of the FACT system originate from the synthesis of two components: sensory and cognitive. The sensory component is divided into five exclusive subcomponents Visual (V), Auditory (A), Tactile (T), Smell (S), and Taste(T'). The cognitive component is divided into three subcomponents: Concrete (C), Representative (R), and Abstract (A). Almost all instructional stimuli occurring in the classroom can be categorized systematically into one of the thirteen categories that are formed by the pairing of these eight subcomponents. To facilitate a better understanding of the categories, a description is given in Figure 26.

The categories included in the matrix in the stimulus dimension on a TIP sheet are combinations of the categories included in the FACT system. More stimulus combinations can be generated using the FACT categories than appear along this dimension. Those chosen were those deemed most appropriate by the developers. The problem is one of selecting the fewest classifications while maintaining maximum efficiency in describing the stimulus conditons of any given task.

Figure 23

MATHEMATICS TAXONOMY

WHOLE	NON-RATIONAL	INTEGER	RATIONAL	
				1.000 Number Concepts and/or Sets
				2.000 Relations Among Numbers and/or Sets
				3.000 Notation
				3.100 Symbols
				3.200 Positional Systems
				3.300
				4.000 Meanings of Operations
				4.100 Addition
				4.200 Subtraction
				4.300 Multiplication
				4.400 Division
				5.000 Properties
				5.100 Addition
				5.110 Closure
				5.120 Commutative
				5.130 Associative
				5.140 Identity
				5.150 Distributive
				5.160 Inverse
				5.200 Subtraction
				5.210 Closure
				5.220 Commutative
				5.230 Associative
				5.240 Identity
				5.250 Distributive
				5.260 Inverse
				5.300 Multiplication
				5.310 Closure
				5.320 Commutative
				5.330 Associative
				5.340 Identity
				5.350 Distributive
				5.360 Inverse
				5.400 Division
				5.410 Closure
				5.420 Commutative
				5.430 Associative
				5.440 Identity
				5.450 Distributive
				5.460 Inverse

	WHOLE	NON-RATIONAL	INTEGER	RATIONAL
6.000 Computation and/or Algorithms				
6.100 Addition				
6.110 Facts				
6.150 Algorithms				
6.200 Subtraction				
6.210 Facts				
6.250 Algorithms				
6.300 Multiplication				
6.310 Facts				
6.350 Algorithms				
6.400 Division				
6.410 Facts				
6.450 Algorithms				
7.000 Problem Solving				
7.100 Addition				
7.110 Number Sentences				
7.120 Word Problems				
7.130 Word Problems (missing elements)				
7.200 Subtraction				
7.210 Number Sentences				
7.220 Word Problems				
7.230 Word Problems (missing elements)				
7.300 Multiplication				
7.310 Number Sentences				
7.320 Word Problems				
7.330 Word Problems (missing elements)				
7.400 Division				
7.410 Number Sentences				
7.420 Word Problems				
7.430 Word Problems (missing elements)				

1.000 NUMBER CONCEPTS and/or SETS
W. A1 (2, 6) A4 (2, 6) A9 (2, 6)
N. B2 (11, 6) B4 (2, 6) ~~B7~~ (2, 6) ~~B9~~ (11, 6)

SPECIFIC DIFFICULTY:

2.000 RELATIONS AMONG NUMBERS and/or SETS
W. A5 (3, 6) A6 (2, 15) A7 (2, 6) A10 (3, 6) A11 (12, 6) A12 (3, 6) A13 (11, 6) A14 (11, 6) A15 (3, 6) A16 (3, 6)
N. A24 (12, 6) B1 (11, 6) ~~B6~~ (2, 6) ~~B9~~ (12, 6) ~~B10~~ (11, 6) ~~B11~~ (12, 6) C2 (11, 15) C3 (11, 15) C5 (11, 15) C7 (11, 15)

SPECIFIC DIFFICULTY:

3.000 NOTATION
3.100 SYMBOLS
W. A3 (3, 6) C8 (3, 6) C9 (3, 6) C10 (3, 6) C12 (3, 6) C15 (3, 6)
N. C14 (3, 6)

SPECIFIC DIFFICULTY:

3.200 PLACE VALUE
W. A17 (12, 6) ~~A20~~ (12, 6) ~~A21~~ (12, 6) ~~A22~~ (12, 6)
N. ~~A19~~ (12, 6) ~~A23~~ (12, 6) ~~A24~~ (12, 6) B3 (13, 5) B5 (3, 6)

SPECIFIC DIFFICULTY:

4.000 MEANINGS OF OPERATIONS
4.100 ADDITION
W. S1 (12, 6) S2 (12, 6)
N.
SPECIFIC DIFFICULTY:

4.200 SUBTRACTION
W. S3 (12, 6) S4 (12, 6)
N.
SPECIFIC DIFFICULTY:

4.300 MULTIPLICATION
W. S6 (12, 6)
N.
SPECIFIC DIFFICULTY:

4.400 DIVISION
W. S7 (12, 6)
N.
SPECIFIC DIFFICULTY:

Figure 24

MATHEMATICS PROFILE

Three mathematics tasks are presented below. To illustrate the use of the stimulus dimension each task is followed by its appropriate stimulus classification.

Task 1: a card with the numeral 65 on it is shown to the child and the child is asked to name the number - 3(VA).

Task 2: a card with the numeral 65 on it is shown to the child and the examiner says, "This numeral is 65, how many tens does it have?" - 12 (AA,VA).*

Task 3: the child is shown an abacus with 65 represented, the examiner says, "The number represented on the abacus is 65; how many tens does it have?" (AA,VR).*

*Item labeled AA because auditory information is provided the learner besides the oral directions.

Figure 25

TASK/PROCESS INTERGRATION PROBE

S / R	VC 1	VR 2	VA 3	AC 4	AR 5	AA 6	VC TC 7	VR TR 8	VA TA 9	AA VC 10	AA VR 11	AA VA 12	VR VA 13	VC VA 14	VC VR 15	AA VR VA 16	AA VC VA 17	AA VC VR 18	AA VC TC 19	AA VR TR 20	AA VA TA 21	AA TC TR 22
VSC 1																						
VSC$_i$ 2																						
VSR 3																						
VSR$_i$ 4																						
VSA 5																						
VSA$_i$ 6																						
VWC 7																						
VWC$_i$ 8																						
VWR 9																						
VWR$_i$ 10																						
VWA 11																						
VWA$_i$ 12																						
NIC 13																						
NMC 14																						
NIR 15																						
NMR 16																						
NIA 17																						
NMA 18																						

COMMENTS:

Figure 26

Description of Behavior and/or Stimuli Categories (FACT).

1. **Visual Concrete:** Viewing the real or actual object or thing around which the instruction is centered.
2. **Visual Representative:** Viewing a mode (two-dimension or three-dimensional) or diagram representing an object, thing, or idea around which the instruction is centered.
3. **Visual Abstract:** Reading a written description of something related to the object, thing, or idea around which the instruction is centered.
4. **Auditory Concrete:** Hearing the real or actual object or thing around which the instruction is centered.
5. **Auditory Representative:** Hearing a representation of the object, thing, or idea around which the instruction is centered.
6. **Auditory Abstract:** Hearing a verbal description of something related to the object, thing, or idea around which the instruction is centered.
7. **Tactile Concrete:** Feeling physically and or Kinesthetically the real or actual object or thing around which the instruction is centered.
8. **Tactile Representative:** Feeling physcially and/or Kinesthetically a representation of an object, thing or idea around which the instruction is centered.
9. **Tactile Abstract:** Feeling physically and/or Kinesthetically a verbal description of something related to the object, thing, or idea around which the instruction is centered.
10. **Smell Concrete:** Smelling the real or actual object or thing around which the instruction is centered.
11. **Smell Representative:** Smelling an artificial scent representative of the real or actual object or thing which the instruction is centered.
12. **Taste Concrete:** Tasting the real or actual object or thing around which the instruction is centered.
13. **Taste Representative:** Tasting an artificial substance representative of the real or actual object or thing around which the instruction is centered.

It should be remembered that the stimulus classification is the first element of an ordered pair in locating a task in the TIP sheet matrix. The second element is the response classification.

A coded description of response classifications is presented in Figure 27. One dimension of response classifications is partitioned into verbal and non-verbal. Levels of the verbal component are speaking and writing. Levels of the non-verbal are identification and manipulation. Speaking and writing are classified as generative or non-generative and all manipulation responses generative. The other dimension of response classifications is cognitive in nature (concrete, representative, abstract) and similar to the one used in the FACT

	VERBAL				NON-VERBAL	
	Speaking		Writing		Identification	Manipulation
	Non-Generative	Generative	Non-Generative	Generative	Non-Generative	Generative
Concrete	VSC 1	VSC$_1$ 2	VWC 7	VWC$_1$ 8	NIC 13	NMC 14
Representative	VSR 3	VSR$_1$ 4	VWR 9	VWR$_1$ 10	NIR 15	NMR 16
Abstract	VSA 5	VSA$_1$ 6	VWA 11	VWA$_1$ 12	NIA 17	NMA 18

Figure 27
Response Classifications
(Uprichard, Archer, Baker and Dinkel-University of South Florida)

Figure 28

DESCRIPTIONS OF RESPONSE CLASSIFICATIONS

NOTE:	Non-generative Response-Correct response is identified from one or more presented choices (odd numbered responses). Generative Response Correct response given without presented choices (even numbered responses).
1. VSC—	
2. VSC'—	
3. VSR—	Verbally speaking representing, or imitating a sound of an object or thing around which the task of instruction is centered—non-generative.
4. VSR'—	Same as VSR except generative in nature.
5. VSA—	Verbally (speaking) describing an object or thing around which the task or instruction is centered—non-generative.
6. VSA'—	Same as VSA except generative in nature.
7. VWC—	
8. VWC'—	
9. VWR—	Drawing a line, diagram or picture, etc., to convey an idea related to an object or thing around which the task or instruction is centered — non-generative.
10. VWR'—	Same as VWR except generative in nature.
11. VWA—	Writing an abstract symbol (letter or numeral) related to, or written description of an object or thing around which the task or instruction is centered— non-generative.
12. VWA'—	Same as VWA except generative in nature.
13. NIC—	Identification (pointing, marking, etc.) of a real object or thing around which the task or instruction is centered— non-generative.
14. NMC—	Manipulation of a real object(s) or thing(s) around which the task or instruction is centered-generative.
15. NIR—	Identification (pointing, marking, etc.) of a representative object (model) or thing (picture, diagram, etc.) around which the task or instruction is centered—non- generative.
16. NMR—	Manipulation of a representative object(s) (model) or thing (picture, diagram, etc.) around which the task or instruction is centered— generative.
17. NIA—	Identification (pointing, marking, etc.) of abstract symbols (letters, numerals, words, etc.) related to the object or thing around which the task or instruction is centered— non-generative.
18. NMA—	Manipulation (physical) of abstract symbols (letters, numerals, words, etc.) related to the object or thing around which the task or instruction is centered— generative.

system. The response classifications used in this schema are determined by pairing the various subdivisions of the two major dimensions. For example, cell 5-VSA is read Verbal Speaking Abstract, cell 11 would be read Verbal Writing Abstract. A description of these categories is given in Figure 28 along with an explanation of what is meant by generative and non-generative. Four categories 1, 2, 7, 8, are undefined in this schema because they do not exist.

It is possible to go back to the three mathematics tasks previously presented and classify the response modes required for each task according to the above schema. Task 1 requires a category 6 response (VSA'), thus the ordered pair locating this task in the matrix would be (3,6). Tasks 2 and 3 also require verbal speaking abstract responses which are generative in nature, therefore, the ordered pairs locating these two tasks would be (12,6) and (11,6) respectively. The stimulus condition is different in each of the three tasks presented, but the response mode is the same.

PLANNING AND CONDUCTING THE TASK/PROCESS INTEGRATION PROBE

As previously indicated task/process integration probes are conducted in each area of specific difficulty identified in Phase I. In planning a probe, multiple tasks on a given topic are designed by systematically varying stimulus and response conditions. For example, if place value is identified as a problem area then the teacher would construct numerous tasks measuring place value. Each of the tasks constructed would be represented in the matrix on the TIP sheet by placing letters in appropriate cells. The first task to be administered would be lettered "a", the second task to be administered "b", the third task "c", and so on. All tasks are represented in the matrix on the TIP sheet before the probe begins. Generally, tasks are administered according to the following three rules:

1. Tasks involving abstract stimuli are administered first, those involving mainly representative stimuli second, and tasks involving mainly concrete stimuli last.
2. All tasks within a stimulus condition are administered before moving to another stimulus condition. Normally, the first stimulus condition probed is that represented in the items missed in the assessment.
3. Tasks requiring generative responses within a stimulus condition must be administered before tasks requiring non-generative responses.

Following these three rules will reduce the child's learning from previously administered tasks. In the probe the stimulus as well as the response conditions are systematically manipulated.

Successfully completed tasks in a probe are indicated by circling the appropriate letter in the matrix on the TIP sheet. By examining the circled tasks on the matrix, one is able to make inferences about the learning style of a child in acquiring specific content in terms of the manipulated variables. When two probe sheets are compared, it is possible to examine the relationships of learning styles in acquiring different mathematics content. Results of two

Figure 29

TASK/PROCESS INTEGRATION PROBE
PLACE VALUE

W3.200

NOTATION—PLACE VALUE (A17)

S / R	VC 1	VR 2	VA 3	AC 4	AR 5	AA 6	VC TC 7	VR TR 8	VA TA 9	AA VC 10	AA VR 11	AA VA 12	VR VA 13	VC VA 14	VC VR 15	AA VR VA 16	AA VC VA 17	AA VC VR 18	AA VC TC 19	AA VR TR 20	AA VA TA 21	AA TC TR 22
VSC 1																						
VSC₁ 2																						
VSR 3																						
VSR₁ 4																						
VSA 5						k				ⓦ	h	c				o						
VSA₁ 6			a'			j				ⓥ	f	a				l						
VWC 7																						
VWC₁ 8																						
VWR 9																				ⓣ		
VWR₁ 10																				s		
VWA 11										ⓨ		d				n p						
VWA₁ 12			z			i				ⓧ	g	b				m						
NIC 13																						
NMC 14																			ⓤ			
NIR 15																						
NMR 16																				r		
NIA 17												e				q						
NMA 18																						

COMMENTS:

task/process integration probes conducted on place value and the concept of rational numbers are presented in Figures 29 and 30 respectively. Both these probes were conducted with an eight-year-old 3rd grade child.

An examination of the TIP sheet (Fig. 29) for place value indicates that the child was administered 27 different items (a through a') and missed 20 tasks before getting a correct answer (circled task t). Task t involved representative stimuli and required a non-generative written response on the representative level. The next five tasks administered (u through y) were answered correctly. All these tasks involved concrete stimuli. The responses required for these tasks were both generative and non-generative and required writing, speaking and manipulation of objects. One interpretation of data on this sheet might be that stimulus is the dominant factor in the acquisition of place value for this child and that initial instruction on this topic should begin at the concrete level.

Figure 30

TASK/PROCESS INTEGRATION PROBE RATIONALS

N1.000

CONCEPT OF RATIONALS IN FRACTION FORM (B4)

S R	VC 1	VR 2	VA 3	AC 4	AR 5	AA 6	VC TC 7	VR TR 8	VA TA 9	AA VC 10	AA VR 11	AA VA 12	VR VA 13	VC VA 14	VC VR 15	AA VR VA 16	AA VC VA 17	AA VC VR 18	AA VC TC 19	AA VR TR 20	AA VA TA 21	AA TC TR 22
VSC 1																						
VSC1 2																						
VSR 3																						
VSR1 4																						
VSA 5													l			[illegible]	s					
VSA1 6		j	h							z												
VWC 7																						
VWC1 8																						
VWR 9																						
VWR1 10						[illegible]				e	[illegible]											
VWA 11																r	t					
VWA1 12	m	k				g																
NIC 13														n								
NMC 14										[illegible]									v			
NIR 15											b											
NMR 16																						
NIA 17		l																				
NMA 18																						

COMMENTS:

Subset: set

a, b, c, d, e, m, o, p, q, r, s, t, u, v, z

Parts: whole

f, i, j, k, l, n, w, x, y, a', b'

Symbols

g, h

On the probe focusing on the concept of rationals in fraction form, the child was administered 28 tasks (Figure 30). Of the 28 tasks, only nine were answered correctly. Six of the nine correct responses given to tasks were non-generative in nature. The three correct generative responses involved the manipulation of concrete objects. It is also interesting to note that all written responses were representative and non-generative. An interpretation of the data in this probe would indicate that response rather than stimuli is the dominant factor in the development of the concept of fraction for this particular child. In planning initial instruction the response classifications might be limited to manipulation of concrete objects and written response which are representative and non-generative in nature.

Phase III Determination of Objectives

In this model an educational objective includes a content statement and behavioral indicators. The content statement is a statement or definition of a concept or principle, it denotes no learner behavior. The behavioral indicators describe the specific behaviors the learner must exhibit to indicate acquisition of a given concept or principle. That is, a distinction is made between learning and performance. For example, a content statement for the mathematics principle place value may be as follows: "A multi-digit numeral names a number that is the sum of the products of each digit's face value and its place value." Listed below are some behavioral indicators associated with this content statement.

1. Given a set of "N" blocks, the child will arrange them in groups of tens and ones, represent the grouping using straws (face value) and cups (place value) and state and/or write the two-digit numeral associated with the set.
2. Given a two-digit numeral orally and/or in written form, the child will represent the numeral using straws (face value) and cups (place value), and arrange a set of blocks into groups of tens and ones as indicated.
3. Given a set of "X's" on paper the child will circle as many groups of tens as possible, then represent the groups of tens and remaining ones on an abacus, and state and/or write the two-digit numeral associated with the grouping.
4. Given a two-digit numeral orally the child will represent the numeral on an abacus.
5. Given a two-digit numeral in written form, the child will represent it on an abacus.
6. Shown a two-digit numeral represented on an abacus, the child will state the numeral.
7. Shown a two-digit numeral represented on an abacus, the child will write the numeral.
8. Given a three-digit numeral orally the child will write it in expanded notation using multiples of hundreds, tens, and ones.
9. Given a three-digit numeral orally, the child will write it in expanded form as follows: (ax100) + (bx10) + (cx1).
10. Given a three-digit numeral orally, the child will write it in expanded form using exponential notation, i.e., $(ax10^2) + (bx10^1) + (cx10)$.

This list of behaviors is not exhaustive. Further, since it is hypothesized (Brownell and Hendrickson, 1950) that a learner acquires a concept or principle in stages, the number and complexity of the behaviors exhibited indicates varying levels of attainment. The behavioral indicators listed for a given content statement in this model should be derived from the task/process integration probes.

The authors prefer the educational objective schema used in this diagnostic and prescriptive model to the traditional behavioral objectives approach for two reasons. First, it is too easy to write objectives in mathematics without really knowing the mathematics concepts. Second, in writing behavioral objectives the tendency is to write only one objective per principle or concept to be learned, thus a specific behavior is taught rather than the mathematics principle involved. For example, in the study of the different bases within the Hindu-Arabic system one usually finds that students can work efficiently in base ten, thus it is assumed they understand the principles and concepts embedded in the system. However, when working with a different base it is soon discovered that the students have not learned the principles and concepts of the system at all, but rather specific behaviors related to a given base (10).

Phase IV Prescription Development

Prescriptions for each of the educational objectives (determined as a result of Phases I, II, and III) are developed on task forms (Figure 31). Six components comprise an individual task form: Educational Objective, Method, Stimulus, General Description of Procedures, Assessment, and Inferences. Normally the prescription for a given educational objective (content statement and behavioral indicator) on the task form is coded according to the mathematics taxonomy presented in Figure 23. The code is placed in the box to the left of the content statement. All task forms relating to a given educational objective will have the same content statement, but each form will have a different behavioral indicator.

Three basic theories of instruction: Didactic (A), Socratic (B), and Discovery (C) are used as a basis for generating and describing the method used to facilitate a task. Didactic is defined as telling, lecturing or reading; Socratic as structured questioning, and Discovery (Glennon, 1966) as a situation in which the learner has responsibility for setting his own goal and learning experiences for the purpose of creating new knowledge. A pure Didactic, Socratic, or Discovery method is seldom observed in instructional situations, but rather combinations of the three. Hence, on the task form, method is designated and/or coded as a function of these combinations. For example, a method coded AB indicates that a learner was told or read some information, questioned, and then expected to exhibit some desired behavior. A method BA is the reverse process of AB. A guided discovery approach may be coded as BC, CB, ABC, etc. Provision for one change in method on a task form is made by including a Planned Procedures Column (P) and an Actual Procedures Column (A). Planned and actual procedures for method are indicated by placing a check mark across from the appropriate code. The stimuli available to the learner are coded on the task form in like manner. The codes used in the stimuli column are derived from the FACT system that was previously described. Response modes are not coded on this form in a specific column, but can be determined by examining the behavioral indicator. A General Description of Procedures contains a verbal description of the lesson used to teach a given task and should correlate with the coded method and stimuli variables.

The last two components on a task form, Assessment of Objective and Inferences are closely related. The Assessment of Objective must include examples of specific tasks or items that the learner is to do. Inferences include statements that indicate whether the learner was successful at completing these

Figure 31
Task Forms

Name ____________ Session ____________ Clinician ____________

____________ Date ____________ ____________

Content Statement ____________

Behavioral Indicator: ____________

METHOD			STIMULI		
(P)		(A)	(P)		(A)
	A			VC	
	B			VR	
	C			VA	
	AB			AC	
	AC			AR	
	BC			AA	
	BA			TC	
	CA			TR	
	CB			TA	
	CB'			SC	
	ABC			SR	
	ACB			T'C	
	BCA			T'R	
	BAC				
	CBA				
	CAB				

General Description of Procedures

Assessment

Inferences

tasks and why (if possible). The Inference component on this form is completed after instruction is implemented. The effectiveness of specific prescriptions for achieving a given educational objective is determined by examining the Inference component on all task forms relating to that particular educational objective. If a particular educational objective is achieved, one then moves on to the next objective. If it is not achieved, the prescription must be altered.

DIFFUSION

By

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Teacher Corps projects throughout the nation are striving to strengthen and improve programs of preservice and inservice teacher education. Some major purposes common to all Teacher Corps projects are the following:

1. To clarify common understanding of what is currently known about the improvement of educational practices for students, classroom teachers, and the local community.
2. To apply the knowledge from these three basic areas to the construction of a demonstration project in a real community and school site.
3. To study how available information can be adapted and applied in an interactive educational setting.
4. To demonstrate and teach successful procedures, products, and practices to other educators, who can then reproduce such procedures in other educational settings.

This chapter will concentrate on the fourth phase. Demonstration can be regarded as complete only when successful procedures, products, and skills have been diffused to other educational sites. The word **diffusion** implies sharing with others the knowledge and skills gained during a project. In diffusion, the purpose of the sharing is not merely to show (this is dissemination) but rather to teach, i.e., to give others the skills and knowledge needed to replicate successes at other educational sites.

Effective Diffusion Activities

Since the purpose of a diffusion is to teach rather than to inform, diffusions themselves must be developed using sound instructional principles. The educational procedures used during the diffusion must ensure that maximum learning (transfer of knowledge and skills) occurs during the diffusion effort.

Six events known to encourage effective learning should apply to diffusion activities. A diffusion effort, regardless of the content, should include: (a) motivational activities, (b) presentation of information, (c) presentation of examples of the content and skills, (d) opportunities for participants to practice skills and procedures, (e) feedback from instructors, consultants and peers, and (f) generalization and application to another setting.

Motivational Activities

Every diffusion activity should give participants reasons why they should acquire particular skills and knowledge or learn how to implement new procedures or practices. We all learn better when we know that the energy we invest in learning will somehow benefit us, make our lives easier, and provide us with some tangible reward such as saving time and money, improving attitudes among colleagues, or increasing performance levels in a project. Participants' attitudes and their willingness to learn new skills and information will be directly related to the relevance of such skills and knowledge to their particular needs and situation.

Participants also learn better when they believe that they are capable of learning the materials and that they will feel successful. They must be convinced that they can and will learn the new information and skills, whether or not they later choose to apply them.

Because they sometimes feel self-doubt in new learning situations, adults are often apprehensive about acquiring new ideas and skills. Introductory activities should be directed toward making participants feel at ease, creating a willingness to try out new ideas, and promoting attitudes that all participants can be successful in learning the skills presented.

Presenting Information/Skills

The presentation should be simple, straightforward, and in terms familiar to participants. This is not the time to use words and situations extraneous to the material to be learned, because at this stage participants are unable to separate the important issues from elaborations and decorations. If there are five easy steps, present five easy steps. Material which is unnecessarily complex will only make learning needlessly difficult for the participants.

Use simple, direct English and present the skills and ideas to be learned in a skeleton or outline format. If there is a procedure to be learned, present all the major components first. Learning will be easier if participants get a clear overview and understanding of an entire procedure before going on to the details of each component.

Using Examples

The purpose of this diffusion component is to show participants how something is done and to suggest ways in which they can do it for themselves. Examples of procedures and products can make learning new skills and ideas much easier.

Illustrations used to clarify a new idea or skill should be familiar to participants. Participants should not be expected to learn process and content at the same time; a dual presentation makes learning more difficult. Show "how" through simple, familiar examples. This will allow participants to concentrate on the process. For example, elementary school teachers should be given examples appropriate to an elementary setting, and laboratory chemists provided with examples familiar to chemists. If both chemists and elementary teachers are present in the same group, use examples to explain content and process that are familiar to members of both groups. These might include examples from the home, driving or maintaining a car, banking, safety, or any topic that is considered to be common knowledge to all adults.

If a skill is particularly complex, present it in smaller parts with examples for each part. There is a limit to how much new material individuals can learn and remember without pauses, examples, and reviews. This is particularly important when participants are expected to replicate successfully what they are hearing and seeing in the diffusion activity.

Providing Practice

Individuals are more likely to use a skill or idea if they have previously tried it. Thus, during a diffusion session, participants should have the opportunity to practice newly acquired skills and ideas. Time can be profitably used for this initial trial stage of learning a new skill.

Practice of new skills should include simulations that are as relevant as possible to participants' respective jobs and tasks. Such realistic exercises increase enthusiasm and enable participants to apply their existing skills and knowledge to the new ideas being learned. In addition, realistic exercises increase the probability that participants will be able to apply the new notions back home.

Providing participants with the opportunity to use new skills has three main purposes. The first purpose is to increase the depth of learning. Knowing the principles of how something is done is very different from actually doing it. Practice provides learning at the "do" rather than at the "know" level.

The second purpose is to provide participants with expert guidance during their first trials. This will decrease the chances of participants falling behind or getting lost. If they become discouraged or believe the new skills are too difficult for them, the chances are diminished that they will actually apply the skills in their work situations.

The third purpose for practice during diffusion sessions is to provide participants with a sheltered environment in which they may falter or make incorrect decisions without jeopardizing their credibility. It is difficult for most of us to try new ideas in front of colleagues or pupils when we are not quite sure of the outcomes. Having once been successful, our willingness to attempt it again is increased.

Providing Feedback

Participants need information about the accuracy of their performance. The products of initial attempts at a new skill or procedure reflect participants' perceptions of correct and adequate performance. Their initial perception may or may not be accurate. If the initial perception and resulting performance is satisfactory, then feedback from presenters or "experts" provides recognition and reward. Knowledge about a good performance will motivate participants to repeat the performance.

On the other hand, if the initial perceptions of participants lead them to an unsatisfactory product, then the opportunity exists for analysis and clarification of their misconceptions. Participants should have the opportunity to study their incorrect decisions and procedures and to adjust their performance until it is acceptable to them, to the experts, and to their fellow participants. This analysis and adaptation process will help them develop the analytical and adaptive skills they will need to replicate the newly acquired skills in their jobs.

Drawing Generalizations and Making Applications

By discussing ways to implement new skills in other settings, participants will find it easier to generalize and apply ideas and skills from the diffusion to new projects or situations. New examples showing how to apply the skills and procedures can be presented.

In an interactive diffusion session, group discussion can be encouraged. Participants can share their perceptions about how the new skills and ideas might be applied in their home projects. These discussions can also reveal real-life constraints to application. Ideas for solutions can be shared by the group. If it is not an interactive diffusion effort, suggestions can still be presented for implementing the ideas in a new situation. Common problems and suggestions for avoiding them can also be presented.

Four Types of Diffusion Efforts

There are at least four different types of diffusion efforts that can be useful in providing others with the skills and knowledge needed to replicate successful ideas. Here is a brief description of each of the four types along with benefits and constraints.

Type 1 Diffusions

Type I Diffusions consist of transportable materials that allow others to learn, practice, and generalize skills from the sponsoring project without the aid of a presenter or facilitator. The communication associated with this type of diffusion effort is one-way — from the prepared materials to interested readers, viewers, or listeners. The diffusion materials themselves must provide participants with motivation, information, examples, practice opportunities, feedback, generalizations and applications.

Since there is no opportunity for interactive questions and answers, Type I Diffusions must be carefully prepared, field tested, and revised, where necessary, before distribution to interested projects.

Type II Diffusions

Type II Diffusions include transportable materials, plus verbal explanations, examples, and interactive discussion by an "expert" staff member or members from the sponsoring project.

In Type II Diffusions, the presenter and the materials share the responsibility for providing participants with motivation, information, examples, and ideas for generalizing to new projects. Practice and feedback activities are still considered a part of the prepared diffusion materials. This type of diffusion is often needed by a new project during the planning activities at the outset of the project.

Type III Diffusions

This type also includes diffusion materials and presenters. The added feature of Type III Diffusions is the interactive, workshop-like practice and feedback activities. Benefits of such activities include: (a) information from and interaction with the presenter and other workshop participants, (b) the motivation created by being in a new environment and setting, (c) the opportunity to practice newly acquired skills in interesting simulations and games, and (d) the opportunity to discuss implementation of new skills in one's own project with others facing similar constraints and decisions.

Type IV Diffusions

In addition to all those components mentioned in a Type III Diffusion, Type IV is often conducted at the host project site where participants have the opportunity to discuss implementation ideas with project members currently working in that area.

One diffusion model which combines Types III and IV is a variant on the Agricultural Extension Agent model. The "agents," or persons responsible for carrying out the diffusion are knowledgeable about those schools with which they work and they gain sufficient information and skills related to the Development/Demonstration so they can provide workshops and technical assistance throughout the district to speed replication efforts. A second option is the use of the Demonstration site as a Diffusion center, with persons who wish to consider adoption/adaptation coming to the Demonstration site, seeing the project in action, being trained in how it was done, and being helped to "translate" it into their own context. Additionally, one could envision combinations of these two models.

In the following list, the diffusion efforts are classified according to content:

Type I	Type II	Type III	Type IV
1. Materials alone	1. Materials	1. Materials	1 Materials
	2. Presenter	2. Presenter	2. Presenter
		3. Group interaction	3. Group interaction
			4. Site visit
			5. Technical assistance

Variations of these diffusion components can be used. They are presented in this form to illustrate a few of the most common types of diffusion efforts that are currently being used or planned by Teacher Corps projects. The intent is not to rule out a "presenter alone" or any other combination of elements that suits the needs and resources of a project.

The four types of diffusion efforts discussed here are legitimate ways of teaching others to replicate skills and ideas in new sites. A look at the benefits and constraints of each might help a project identify a diffusion strategy which best suits particular needs. These benefits and constraints are presented in Table 8.

Table 8

The Four Types of Diffusion Efforts, Their Benefits and Constraints

Diffusions	Benefits	Constraints
Type I	Portability Readily available reference Individualized//self-paced Least costly	Sometimes not easily understood No participation Feedback omitted
Type II	Portability Readily available reference Participant questions possible Learning potential greater than Type I	Presenter paced No participation No guarantee that understanding or learning is occurring
Type III	Portability Readily available reference Participant questions possible Participation in simulation activity Feedback Generalization to other activities Learning potential greater than Type I or II	Time required greater than Type I or II Larger staff often required More planning and preparation More costly
Type IV	Readily available reference Participant questions possible Participation in simulated and actual on-site activity Feedback Authentic Opportunity for participants to confer with project staff on-site and to observe "happenings" as they actually occur	Not portable to other locations Site facilities to accommodate demonstration Possible inconvenience to "ongoing" program workers Cost to prospective adaptors

The costs of producing and providing diffusion activities are often a limiting factor. Projects should select the activities most appropriate for the skills and ideas to be taught, their budgets, and the needs of their intended audience.

Material That is Diffusion-Worthy

Many successful aspects of a project may be appropriate for diffusion. Some of them include:

1. Procedures used in project;
2. Products developed during a project;
3. Principles, rules, and guidelines that can be followed to achieve desired results;
4. Ideas related to content, sequence, presentations, pacing, motivation, and attitudes;
5. Administration and planning strategies;
6. General strategies for planning, developing, implementing, documenting, and evaluating programs and projects;
7. Ideas for staff communication and interaction;
8. Ideas for the introduction of new ideas and personalities into ongoing educational settings.

Projects can use three main criteria to identify skills, procedures, and ideas that should be shared with others. Ideas selected for diffusion should be: (a) generalizable, (b) needed by others, and (c) successful within the host project.

Generalizable Ideas

Projects will have maximum success teaching others to replicate their skills and ideas if they choose to diffuse those that are most generalizable to other sites and situations. They must ask themselves, "What was it?", Why did it work here?", "What are its chances of working elsewhere?", and "Under what conditions is it most likely to be successfully applied elsewhere?"

When replication of skills in a new site is used as the criterion for judging success, diffusion efforts will fail if skills taught are site-specific. If a successful idea can be repeated only with special equipment and facilities, a unique combination of staff skills and personalities, or much external financing, replications are likely to be minimal. The generalizability of skills and procedures is an important criterion for the selection of materials and ideas to diffuse from your project.

Need

Another question of major importance is, "How much is this idea, skill, or procedure needed by others?" Is there an audience for your particular successes? Even though an activity is extremely successful within your project, it should not be developed into a diffusion if no one else needs it. Judging how critical the need is for a particular idea, skill, or procedure can help projects select skills and procedures that can be successfully diffused.

Success

Before selecting material for diffusion efforts, projects should assess whether they have been successful in applying the ideas in their own project. A projects's achieved results using a particular idea should be compared with its original goals and established standards of success.

Developing Diffusion Strategies and Materials

There are five major types of activities associated with designing and developing successful diffusion strategies and materials. These include: planning, developing, evaluating, and revising the strategies, materials and procedures to be used. All these activities will be carried out prior to advertising and sharing your ideas with other projects.

Planning and Developing

The content of a diffusion activity should be carefully analyzed and planned before actual development of the diffusion is begun. A few basic questions can help in identifying probable content.

1. What vocabulary, concepts, and ideas should be presented?
2. In what order should the content be introduced? Chronological? Logical? Random?
3. How will participants transfer newly obtained ideas to real-life situations? Will they be able to recognize their usefulness in a different context and apply them? Practical examples such as illustrations, graphics, and pictures (even line drawings or cartoons) are helpful. Examples compared to non-examples or common misconceptions can also be beneficial.
4. How does a process work? It is always a good idea to include rules or suggestions for its use.
5. When can the content be used? Some indications of suitable situations are generally beneficial. Certain ideas are best used during planning stages. Others should be used elsewhere.

It is important to remember that a diffusion activity is not a rehash of the happenings of a project. Rather it is the refashioning of what happened at the development site to a new situation or set of circumstances.

After an overview of the content is complete, it is a good idea to plan an overall sequence for the presentation. Determine the best order for the total presentation and for introducing each idea, procedure, or rule. Sometimes this requires shuffling material after it is written. Sequencing is very important and should not be overlooked to save time.

Once the make-up and sequence of the content has been identified, it is time to actually plan the diffusion materials and activities. This includes fitting the motivation, presentation, practice, feedback, and generalization components to the content. The specifics of all these components were discussed previously in this chapter.

The way in which information is delivered to a group can have a major impact upon how they receive the information. The final media choice will have to suit the budget and talent of the sponsoring project, the constraints of actually delivering the diffusion materials and activities, and the nature of the content to be diffused.

A project should develop prototype or temporary materials prior to trying them out, because many things may need to be revised and changed. The first set of materials should be inexpensive and temporary. After the trial and revision, the final draft of the materials can be produced.

Evaluating and Revising

To ensure that materials and procedures are accurate, effective, and suit the needs of the intended audience, diffusion materials and procedures should undergo a formative evaluation. Components that should be assessed during the trial run are: (a) diffusion materials, (b) the interactive session or workshop (if used), (c) personnel implementing the diffusion, (d) facilities and equipment used during diffusion activities, and (e) the location or site.

The diffusion strategy should be evaluated to determine whether it achieves its intended goals. Information gathered through these assessments can be used to answer these questions:

1. Did the participants like the materials/activities?
2. Did they learn to use the ideas, concepts, or procedures that were diffused?
3. Were they able to adopt any of the ideas or procedures diffused and actually use them in their own projects?
4. Are there any parts of the diffusion activities or materials that can be improved?
5. Do the results achieved with the diffusion strategy and materials warrant offering it to others?

Diffusion efforts should be evaluated at two different points: before the diffusion activities actually begin and during or immediately following diffusion activities. Table 9 illustrates the purposes for evaluation activities and results anticipated from each activity.

Different materials will be needed to gather information about the success of diffusion activities. These include:

1. The materials themselves, which can be used to collect participants' spontaneous responses to vocabulary and explanations.
2. Attitude inventories, which can be used to gather information on participants' perceptions of:
    a. the utility of ideas and procedures presented.
    b. the clarity of directions and explanations.
    c. the adequacy of summaries and conclusions.
    d. the relevance of practice simulations and adequacy of feedback.
    e. needed improvements in the diffusion materials and procedures.

Table 9
Evaluation Activities
Before and During Diffusion Activities

Evaluation	Purpose	Results
I Before the Diffusion Effort	To Discover If:	Clarify directions
	Directions and Guides are clear	Revise or alter objectives
	Objectives are clear and realistic	Revise weak objectives
	Content is correct and adequate	Revise weak or incorrect content
	Vocabulary is at the proper level	Revise or provide definitions
	Examples are simple and clear	Revise examples
	Practice and feedback are adequate	Revise practice and feedback
	Conclusions and summaries are adequate	Revise conclusions and generalizations
II During and Following the Diffusion Efforts	All of the above in addition, to discover if:	Revise if diffusion effort is to be repeated
	Participants especially liked or disliked specific materials, ideas, or procedures	Revise if diffusion effort is to be repeated
	Participants learned intended ideas, procedures during the activity	Revise if diffusion effort is to be repeated
	Diffusion can occur in planned time frame	Revise either materials, procedures or time alloted
	The diffusion activities can occur in intended facilities and location	Revise diffusion effort or revise facilities or location
	Participants can and do apply skills and ideas learned back on their jobs	Revise diffusion materials, procedures, timing

3. Performance tests which will indicate whether participants learned the ideas and procedures. These can be either formal, written instruments or informal staff observations of each participant's ability to apply information and procedures in a specified situation.
4. Observation techniques can be used to identify the attitudes of participants while they use materials.
5. A follow-up questionnaire and/or site visit can be used to determine how many of the ideas and skills the participants actually implemented in their projects.

If a Type III or IV diffusion effort is planned, evaluation activities should include assessing the effectiveness of the facilities, equipment, and diffusion site. Questions that should be answered relative to these considerations are presented in Table 10.

Table 10

Evaluation Considerations for Facilities,
Equipment, and Diffusion Location

EQUIPMENT	FACILITIES	LOCATION
1. Is the necessary equipment available at other sites?	1. Are the costs reasonable?	1. Can the expense of traveling to the site be justified?
2. Is it relatively simple to operate?	2. Is there adequate lodging for participants?	2. Should participants have access to jobs, homes, and family during diffusion activities?
3. Does it work smoothly?	3. Are there adequate rooms for diffusion presentations and interactions?	3. Does the site reflect the necessary atmosphere.
4. Are there simpler alternatives?	4. Is staff available to meet expected and unexpected needs of the group?	
5. What are the alternatives if equipment malfunctions?		

Summary

Teacher Corps projects are expected to share successful ideas and procedures with other educators as a part of their Demonstration responsibility. The purpose of this sharing is not only to show others what has been done, but to help them apply the successful ideas and procedures in new sites by teaching them what they can do themselves.

Since diffusion efforts must not only teach others about, but also teach them how, good instructional principles should be applied to the planning, development, and implementation of project diffusion activities. Diffusion materials and strategies should be field tested for effectiveness within a project before being advertised and shared with other projects.

This case study reports a Type I diffusion effort (materials only) but also notes the desirability of having facilitators available to assist teachers who are working with the materials.

TYPE I DIFFUSION—MASTERY TEACHING

by
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One of the major Research Adaptation components of the Indiana University/Indianapolis Teacher Corps Program Components is **Mastery Teaching** (MT). This diffusion effort is important to include as a case study in this monograph because a major portion of MT development funding came from Teacher Corps, Washington. Prior to funding by Teacher Corps, preliminary development was being conducted through the National Center for Development of Materials in Teacher Education at Indiana University under the direction of Dr. James Okey. MT materials were also being selectively used in undergraduate classes in the School of Education. The primary focus of this case study will be to reconstruct the evolvement of MT as it pertains to Teacher Corps.

The conceptual framework of MT is based on Benjamin Bloom's ideas of Mastery Learning. The basic concept is that most students, given enough time, can master learning tasks at a high quality. If students are formatively evaluated and given sufficient time, Bloom feels most of the students will succeed in the learning tasks. Bloom's ideas of "mastery learning" have had significant impact on American education today. The terms "mastery learning" and "Bloom's taxonomy" are common standard expressions in today's education.

Okey felt that it was important to provide teachers a set of training materials which would enable them to organize systematically their instruction, allowing mastery learning to be more easily implemented in their classrooms. Consequently, the MT materials began to take shape.

General Remarks

This case study is included as a Type I diffusion effort because the MT materials are designed primarily to accommodate self-instruction. The actual case study represents an effort somewhere between a Type I and a Type II because on occasion a trainer intervened in the instruction or initiated introductory efforts and guidance. Because of the extreme limitation of "good" self-instructional materials (which have been exposed to an extensive validation process, or any at all!), the MT diffusion process is as close to a Type I example as is commonly found. MT training has also been used extensively as a Type III diffusion through dissemination efforts by the 9th and 11th Cycle Indianapolis Teacher Corps Program conducted in California, New York and Indiana.

In describing the different diffusion types, one might assume that as the numerical value (I, II, III, IV) increases, so does the complexity, or level of difficulty of the materials, i.e., materials that are handed out vs. materials that are handed out, discussed, and clarified by a trainer for a group of people on site. However, occasionally a set of revised or refined Type I materials evolve from Type III or IV diffusion. The new materials may eliminate the trainer variable, or the material design originally could be in a self-instructional mode. In either case, to compensate for eliminating the trainer, the self-instructional materials may require a level of effort that is much greater than Type II or III materials. A lesson developed for self-instruction is usually much more difficult to develop than a lecture. This is probably the reason most classroom instruction is presented verbally rather than in varying modes.

The previous discussion is intended to illustrate that a "material only" diffusion (Type I) may in fact be more sophisticated than Types II, III, or IV, depending on the purpose and delivery capabilities of the material.

What Was Done

We shall concentrate on the process that took place with Mastery Teaching as it has been connected with the Indianapolis Teacher Corps Project. During the spring of 1975, with the aid of a grant from Teacher Corps, Washington, Okey developmentally field tested the MT materials in the Indianapolis Teacher Corps. Four Teacher Corps Team Leaders, 20 Indianapolis Public School Teachers and 20 interns in four schools participated in this field test. Okey administered pretest measures to all of the participants primarily to determine their knowledge of MT and to identify their teaching practices before the MT program participation. Meetings were held with the Teacher Corps staff, principals of the four school sites in Teacher Corps, and the four team leaders, and initial training was completed. Upon completion of the team leader training in MT, the interns and the cooperating teachers received instruction in MT. To enable the cooperating teachers to receive and complete the instruction during regular school time, the interns relieved the teachers of their classroom activities while the teachers participated in the MT instruction.

Many of the 20 Teacher Corps interns did not perceive and receive the MT training-study with very much enthusiasm. Many considered the MT a new "lay on" by Teacher Corps Administration. This was true to a degree because MT was not specifically planned in the proposal. However, MT was determined to be of sufficient importance to the interns' preservice development that it should be required.

Some interns objected to the additional time they were required to relieve the cooperating teacher to enable the teacher to acquire the MT skills. A few interns and cooperating teachers remarked that developing the teaching unit using MT was more time consuming and difficult than they expected. (MT training as a Type IV Diffusion in the 11th Cycle is conducted with on-site assistance available constantly.)

The pre-post evaluation measures completed by both teachers and interns also were viewed by a few as a "lay on" activity. Many of the interns and teachers did not continue to use MT after the study, because to use it consistently required too much time for planning. Feedback from a few teachers who received MT training in a Type I Diffusion indicated the materials were not sufficiently self-instructional to gain the concepts. A few examples in MT are directed toward promoting group discussion (not a Type I activity), or they lack sufficient explanation to complete the exercise or understand the example.

Evaluation

Okey asked participants to evaluate the MT materials and reported his findings, in part, as follows:

> "Although the overall response to the Mastery Teaching materials was favorable, mixed reactions were indicated concerning certain aspects of the program. Over 40% of the respondents said that mastery teaching may entail too much work for a busy teacher. Many remarked that they had to guess on some questions on the self-test and about 18% said that the pace of the program was too fast. One-third of the respondents were undecided or disagreed that the subject impressed them or sparked their interest. On the other hand, almost all the participants felt that the program was well-organized, clear, and practical. About 75% expect to use mastery teaching in their own classrooms. A high percentage (89%) said that they would recommend mastery teaching to others."
>
> "Many of these same feelings were reflected in the questions requiring written answers. A majority of the participants felt that the program had the potential to improve their own teaching skills while improving their performance. The fact that the program avoided using a textbook and lecture format was viewed positively."

His Final Evaluation Report summary statement also warrants repeating:

> "In the section of this paper entitled 'Purpose of the Evaluation,' eight questions were posed. They asked whether teachers (and interns) acquired the skills, liked the materials and the philosophy, followed mastery teaching in their classrooms, and changed their teaching behaviors as a result of their study of Mastery Teaching. Further questions concerned whether pupil achievement and attitudes were favorably altered because of their teacher's use of mastery teaching and whether pupils could detect difference in procedures used by their teachers. A qualified 'Yes' can be given to all of these questions as a result of the evaluation."

> "Teachers and interns acquired the skills (as judged by the paper and pencil Mastery Teaching post-test) and used them to the degree that pupils perceived differences in their teaching (Student Questionnaire). Unfortunately, our inability to use the Classroom Observation Form leaves us with sketchy evidence about the classroom plans and practices of the teachers and interns."
>
> "The **Mastery Teaching** module (as shown by the Mastery Teaching Module Questionnaire) and the mastery philosophy (as shown by the Questionnaire) were both judged positively by the participants. Not every person was favorable and not all attitudes were significantly altered, but the majority of participants gave positive responses."

One of the difficulties encountered in the diffusion of MT in general has been insufficient data obtained from the Type I diffusion efforts. The inference has been made following a Type III diffusion effort that individuals need to have a facilitator of some type to assist them in their lesson planning. Some generalized inferences about one type of diffusion have been made on the basis of people who experienced another type of diffusion effort. The Indianapolis Teacher Corps Project is planning further study on the effects of MT skill acquisition as a Type I effort; then inferences will not have to be made from one type of diffusion to another and the data base for each type will be available.

In a study yet to be published, data were collected in a follow-up study of participants who were among the original 20 teacher participants. These data indicated that the 15 respondents retained a high level of knowledge of MT; that parts of the MT skills were used, e.g., using behavioral objectives of testing frequently, but most participants thought they did not have resources available or the time to implement MT in their classrooms the majority of the time. These findings are consistent with reports by individual teachers that after they completed MT as a Type I activity they felt unable to transfer the knowledge that they gained into their classrooms effectively.

Many individuals and school systems have purchased the MT kits. When possible, we have tried to caution them that the success of the materials depends a great deal on their expectations of what could be delivered from the program. We have attempted to inform them that if their objective is to enable a large number of teachers to progress through the materials and then implement the techniques in their classroom instruction immediately, then their expectations of MT are probably much too high. Also, they would be more apt to reach their objective by having a MT trainer conduct training sessions in a group. Most of the diffusion efforts to other Teacher Corps Programs have been conducted using MT trainers.

If the objective is to have a few teachers progress through MT over a less restrictive time period and a large amount of practice time is provided, then a Type I effort may be effective.

Where From Here

Recently, Teacher Corps, Washington has given approval to the National Center for Teacher Education at Indiana University to distribute MT through a private marketing firm. It is Teacher Corps' view that a wider distribution of Mastery Teaching materials would best serve the educational community. Through this marketing effort the present MT materials such as filmstrips and audiotapes will be reworked to reflect higher professional quality. In the past, the National Center has attempted to respond to requests for MT materials but was unable to supply sufficiently all orders. (They are not set up to be a materials distributor.) While the materials are being distributed to satisfy the immediate need for distribution to the educational community, the Indianapolis Teacher Corps will continue its research adaptation effort on Mastery teaching with the expectation that new models of MT or adaptive models including other theoretical frameworks may result.

In this case study we see how a new approach to vocational education was diffused to teacher participants by having them take part in the developmental activities of the project.

TYPE II DIFFUSION
THE DEVELOPMENT OF PERFORMANCE BASED INSTRUCTION:
TEACHER PERFORMANCE = PUPIL ACHIEVEMENT

By
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The Cullman/County University of Alabama/Alabama Agricultural and Mechanical University Teacher Corps project uses both Type II and Type III diffusions to share information and skills with vocational classroom teachers. The purpose of these diffusions is to provide teachers with skills they need to develop performance-based vocational instruction which they will use in their own classrooms.

When used as a Type II diffusion, instructional materials and processes include a description of a competency-based lesson plan and examples of such a plan. In addition, a model plan and the teaching of that plan to target students was video-taped so that teachers could view such a lesson in progress as a part of the training materials.

When used as a Type III diffusion, State Vocational staff use the written descriptive materials and the videotapes to conduct interactive workshops with teachers where teachers: (a) become aware of performance-based instruction, (b) become interested in using performance-based materials in their classrooms, and (c) participate in an interactive way to produce their own performance-based materials which they will use in their own classrooms.

The following article describes the background of the project and the procedures used to identify, select, and adapt materials that would be used for teacher training using both Type II and Type III diffusions.

A description of the development of vocational education materials will help describe the sources of the materials used in the diffusion efforts.

Materials Selected for Diffusing Projects

The research project to develop a validated curriculum for vocational education began in the Southwestern United States when a group of states combined to finance the Vocational Technical Education Consortium of States (V-TECS) sponsored by the Commission for Occupational Education Institutions, Southern Association of Colleges and Schools (COEI/SACS).

This research project, now in the fourth year of operation, conducts interviews with incumbent workers, researches former task lists and combines the results into an occupational inventory. The occupational or task inventory is resubmitted to incumbent workers for review and ranking. Once these data are collected, they are submitted to V-TECS for statistical analysis. The analysis is mailed back to the member states and tasks are selected for which job performance objectives are to be written.

Each state then assembles a writing team composed of incumbent workers, teachers, curriculum writers, state supervisors, and a subject matter specialist in the occupational area. The statistical data are transformed by the writing team into performance objectives, criterion-referenced measures for the achievement of the performance objective, and a performance guide which lists the task leading to the attainment of the performance objective. The subtasks or enabling objectives leading to the attainment of the performance objectives are developed from the performance guide. The product of the V-TECS research study is a catalog of performance objectives and criterion-referenced measures with performance guides in each research occupational area. These catalogs provide the means for developing performance-based lesson plans for a validated curriculum which should result in teaching that leads to the acquisition of the skills by pupils. An example page of materials in the V-TECS Catalog in horticulture is provided in Table 11.

Table 11

A Page form the V-TECS Catalog in Horticulture

DUTY: PROPAGATING PLANTS, SEEDS, AND CUTTINGS

TASK: Take cuttings (soft wood and evergreen hardwood)

22. PERFORMANCE OBJECTIVE

Given stock plants to use for taking cuttings, necessary equipment and supplies, take cuttings. Satisfactory completion is realized when the following criteria are met:

(1) Cuttings are taken from current terminal wood.
(2) The cut is made at a slight angle. (45%)

CRITERION-REFERENCED MEASURE

Provided stock plants by the instructor, take cuttings.

PERFORMANCE GUIDE

1. Select stock plants to be used for cuttings.
2. Determine type of wood to be used for cuttings.
3. Take cuttings at 3 to 6 inches long from current terminal growth.
4. Base of the cutting must be cut at a slight angle (approximately 45° angle).
5. Keep cuttings moist as they are taken.

The completion of these catalogs provided the research base for developing performance-based instructional plans, but an objective system was needed for analyzing teaching in relation to the performance-based lesson plan if the performance of the teacher was to lead to the achievement of the specified task by the pupils. The search for an objective system for analyzing teaching that can be used in a Type II or Type III diffusion led to the Teacher Appraisal Instrument (TAI) developed by Madeline Hunter at UCLA. The TAI was modified for use in teacher training by educational leaders in the State of Alabama to fit vocational education. The modified version was renamed The Analysis of Teaching Learning Activities System (ATLAS). The modified system uses five steps for objectively analyzing teaching:

1. Is the behavior of the teacher directing the student toward a perceivable objective?
2. Is the objective at the correct level of difficulty and tailored to the characteristics of the learner?
3. Does the teacher elicit and interpret overt behavior from the learner in order to choose alternatives when progress toward the objective is not evident?
4. Are the time and effort of the teacher and learner consonant with the principles of learning?
5. Are the time and effort of the teacher and learner dissonant with the principles of learning?

With the combination of performance-based lesson plans from the V-TECS Catalogues and the analysis of teaching using the principles of ATLAS, the research adaptation was ready to be implemented in performance based instruction, a system that relates teacher performance to pupil achievement.

Identifying Instructional Needs of Target Teachers for Diffusions

There was a need for a pilot program to develop the concept in a local school setting to see if the system could be replicated by teachers in vocational programs throughout the State of Alabama. After considerable study a proposal was written to Teacher Corps for developing a demonstration project to determine how these materials can be used by classroom teachers to develop their own performance-based materials. The Cullman County Area Vocational Center was selected for this procedural study.

Most of the teachers in the Cullman County AVC have at least seven years of work experience in the occupational areas, have taken four college courses intended to supply instructional competence, and are certified as instructors. In other occupational areas the teachers are certified through baccalaureate programs. Several teachers in the AVC have attained a Master's Degree and several other teachers have completed one year of college work beyond the Master's level.

The amount of professional education of teachers in vocational education ranges from no college training to six years of college. Because of this range of education among vocational educators for whom the training was intended, it was necessary that inservice education procedures should use alternate routes of instruction and highly individualized approaches with varying levels of reading materials and multi-media approaches. Therefore, the study of procedures to use to train teachers to develop performance based instruction had to account for the varying backgrounds of vocational educators.

Program Development Strategy

The strategy adopted for the project was to establish awareness in experienced teachers concerning the elements of performance-based instruction, to establish interest in the developmental aspects of the project, to gain the participation of some teachers, and finally to gain adoption of the elements of performance-based instruction. It was believed that, once the basic elements had been adopted by a few teachers, other teachers would be encouraged by their successes to develop their own performance-based lesson plans and to analyze the teaching of the lesson plans with an eye toward instructional improvement using the principles inherent in ATLAS.

If the demonstration project was to be replicated in other vocational centers, it was imperative that, as the project was developed and implemented, the teachers involved in the developmental aspects be included in State Curriculum Committees so there would be consistency at both local and state levels in the processes and products which the project would develop. In addition, State Vocational Staff involved in educational personnel development must continue to use the processes and products generated in the local project to conduct further training sessions with other AVC instructors throughout the state if the project were to be committed to dissemination and diffusion. In this way the processes and products that would be developed at the local level could be disseminated not only in the form of classroom materials, but also have built in strategies for diffusing the procedures used to develop the materials by providing other teachers training in the use of the products that would be developed.

Diffusion Materials and Procedures Development

Planning for the inception of the project with State Vocational Staff, several teachers at the AVC were appointed to State Curriculum Committees to begin the initial awareness sessions for developing curriculum. In addition, Teacher Corps Staff coordinated the procedures and guidelines for developing performance-based lesson plans with the project coordinator for the State Education Professions Development Act and the Curriculum Unit of the Division of Vocational Education.

The resulting materials describing the preliminary process for writing a performance-based lesson plan was piloted using the Teacher Corps interns in peer tutoring situations to see if the process was successful in guiding teachers to develop competency-based lesson plans and instruction. The procedures, because of the range of vocational teachers' professional development, had to be simple, easily understood, and coordinated with previous professional development activities conducted by State Vocational Staff at previous summer conferences, e.g., writing performance objectives using job analysis techniques.

The procedure that was developed is presented in Table 12.

Table 12

Procedures for Developing Performance Based Lesson Plans

1. Write down the performance objective and criterion referenced measure and the performance guide from the performance based curriculum materials.
2. Develop a list of any skills which may have been left out of the performance guide or which are not provided in the performance guide.
3. Develop a list of enabling skills for achieving the performance objectives.
4. Develop a list of knowledges which are related to the attainment of the skills.
5. Arrange the skills and knowledges in a logical sequence for learning.
6. Write a performance objective and criterion referenced measure for each enabling skill and each enabling knowledge.
7. Develop an instructional activity or instructional activities for each enabling objective. Suggested activities should be adapted to the students and the objective, and may include:
    - 7.1 Demonstration—Prepare a guide
    - 7.2 Audio Tape—Prepare a tape
    - 7.3 Film — Prepare an introduction and analysis
    - 7.4 Slide Tape — Prepare slides or tapes
    - 7.5 Student teaching student
    - 7.6 Lecture
    - 7.7 Video-tape
    - 7.8 Simulation or Mock-up
    - 7.9 Role Playing
    - 7.10 Transparencies
    - 7.11 Reading materials
    - 7.12 Chalkboard
    - 7.13 Flannel Board
    - 7.14 Magnetic Board
    - 7.15 Self teaching materials
    - 7.16 Alternate teaching methods as research provides new insights into teaching and learning.
8. Prepare an evaluation plan for monitoring the achievement of each enabling objective by each pupil.
9. Prepare a paper for tracking the achievement of each pupil of each enabling objective.
10. Evaluate the attainment of the performance objective by having the pupil demonstrate to criterion levels. If the pupil has achieved, the lesson may be validated.
11. Arrange the lessons that have been validated into an instructional unit which can be combined into a project which can be utilized for instruction.

Using this procedure, several teachers at the AVC were requested to develop a model PBI lesson plan and to teach the lesson to pupils. The lesson was video-taped so that the lesson plan and the video-recording could be used as example materials by the State Vocational staff and others who would conduct training sessions for AVC teachers throughout the state.

Delivering the Materials in a Type III Diffusion

As the selected AVC teachers participate in this diffusion activity they will move through the stages of awareness, interest, and participation; it is assumed that their commitment to the concept of performance based instruction which they develop during the learning activity will have the effect of committing other teachers they work with to the concept.

A performance based lesson plan in horticulture, developed from the V-TECS Catalog, Table 11, is presented in Table 13. This particular lesson was videotaped and included as part of the diffusion materials. Table 14 describes the technique for tracking pupil progress in a PBI System.

To facilitate this development process, a steering committee of five teachers, representing each vocational service area (e.g., home economics, trade and industrial education, business and office education) was selected to assist other faculty members in implementing performance-based instruction. Two of the five teachers participated in the development of instructional materials and two participated in the development of procedures to be used in the diffusion sessions.

The project received further assistance from the Alabama State Department of Education when the director of the Program Service Branch of the Division of Vocational Education addressed vocational administrators in the state and mandated performance-based instruction. In addition to performance-based instruction, vocational administrators were reminded that they were to develop management systems which include youth organizations, advisory committees, professional development, curriculum development, instructional improvement, placement, public relations, and provisions for evaluating vocational teachers. In the needs assessment process which was used to relate the project objectives to the needs of the teacher, the goals established by the State Department of Education were used to establish the "ideal" toward which the teachers would strive. Participation of any teacher in working toward the delineated goals must eventually lead to the development of performance based instruction and to the project objectives.

Summary

Assistance in this project was received from the emphasis on accountability in the Vocational Education Amendments of 1976, which was signed into law by the President in October. This law, along with other considerations, requires that vocational teachers conduct surveys to ascertain what jobs are available in their geographical area, train students for those jobs, place students in the occupations and conduct evaluations to be sure that the students were prepared for the occupation. There is to be no discrimination of pupils based on race, sex, or physical and learning problems. Effective counseling techniques are to be developed to assure that the above are met.

Table 13

Performance Based Lesson Plan

TASK: Take Cuttings

PERFORMANCE OBJECTIVE: Given stock plants to use for taking cuttings, necessary equipment and supplies, take cuttings. Satisfactory completion is realized when the following criteria are met:

(1) Cuttings are taken from current terminal wood.
(2) The cut is made at a slight angle (approximately 45° angle).

	Performance Guide Statements	Enabling Objectives	Student Activities	Method
II.	(Knowledge) Parts of Stem 1. Terminal bud 2. Node	Given stock plants, necessary equipment and supplies, identify the parts of a stem necessary for taking cuttings.	Student will point to each part as instructed by teacher.	*Evaluation Plan* Monitor: Let student point to part and visually check each student. Teachers will use demonstration chart.
III	(Knowledge) Types of Growth 1. Current Season 2. Previous Season	Given stock plants, necessary equipment and supplies, identify necessary for taking cuttings.	Student will point to each type growth as instructed by teacher.	Demonstration. Check each student.
IV.	(Skill) Select wood for cutting 1. Stem with terminal bud 2. Stem of current seasons growth	Given stock plants, necessary equipment and supplies, select the proper wood to cut.	Student will select two stems to cut.	Demonstration. Check each student.
V.	(Skill) 1. Take cuttings at 3 to 6 inches long from current terminal wood. 2. Cut base of cutting at a slight angle (approx. 45° angle) 3. Keep cuttings moist as they are taken.	Given stems selected in previous enabling objective, necessary equipment and supplies, take cuttings.	Student will properly take cuttings from stems selected in previous enabling objective.	Demonstration. Check each student.

Table 14

Procedures for Recording Student Progress in Performance Based System

TASK: Take Cuttings

STUDENT'S NAME	ENABLING OBJECTIVES				
	I Parts of Stem	II Types of Growth	III Select Wood for Cuttings	IV Take Cuttings	PTO Completion
Joe Jones	Began 11/2/76 11/2/76 Completed	11/2/76 11/2/76	11/2/76 11/2/76	11/2/76 11/2/76	11/2/76 11/2/76

Vocational administrators are accountable to a local advisory council which is responsible for the vocational programs. With the development and validation of the other aspects of performance-based instruction, the concept provides a framework for accountability which fits the implementation of the law. The law will become effective in the Fall of 1977.

The results of the strategies employed by the project for introducing change are evident. Most teachers in the school are working on some aspect of their professional development based upon their needs assessment. The steering committee is developing a system of management by objectives to assist all teachers in the school in systematic management for implementing aspects of performance-based instruction or aspects related to the implementation of the Vocational Amendments of 1976. Many teachers are participating in college classes which are contributing to their needs. The project staff has worked closely with the colleges involved to encourage the professors to relate the in-service program to project goals for participating teachers. The encouragement by the teachers who participated in the development of performance-based lesson plans has resulted in other teachers writing performance-based lesson plans using the V-TECS Catalogs.

The project has encountered some problems. The project staff has attempted to maintain consistently that Teacher Corps is a "temporary" agency operating to induce change on a "permanent" institution. This can only be accomplished if those persons who are directly affected in the change participate in the change. It is important that ownership of the project be developed by those persons who will implement the changes. In the beginning, there was considerable anxiety expressed by the teachers because of the work entailed in developing performance-based instruction. There was also considerable anxiety expressed by project staff who felt the need to "sell" the faculty on developing and implementing the concept. There was pressure from both the teachers and project staff "to do the job." The staff decided to give the prevailing forces for change an opportunity to act. The proximity of the project staff to the school was one factor. The location of the staff at the school served as a constant reminder that there was work to be done in implementing performance-based instruction. The training of instructional aides under the auspices of the

Comprehensive Education Training Act (CETA) to assist instructors to develop communication lines and trust takes time and it is unwise to hurry the process. Problems relating to communication and trust can be overcome if all parties can focus on common goals. Every success must be reinforced, either extrinsically or intrinsically.

Many projects are placed in a situation in which researchers, usually teacher educators, develop a product and then attempt to encourage the use of the product by teachers. If there is one principle that has been learned in the Cullman County AVC/UAB/ALa. A&M Project, it has been that teachers must either develop, validate, or adapt the process or product that is to be used and that participation in these activities is vital to the adoption of the products. While this may seem to be a laborious procedure at times, it is imperative in the scheme of awareness, interest, participation and adoption for the success of an innovation.

It is also helpful, as the definition of "demonstration" is examined, to remember that description, development, dissemination, and diffusion are not separate entities. Planning for any stage in the adoption of an innovation must include all other phases, if the innovation is to be successful. It appears that the most successful innovations are those that generate diffusion and dissemination in the planning for development. The confirmation of an adoption by the person that developed the innovation is a powerful encouragement to others. It is so with the development and dissemination of religions. The disciples are very convincing, because they are committed.

Inservice training which is field-based (conducted "on-site") fits the Type II Diffusion model. In this case study, some consequences are discussed which result from professors doing more than "deliver courses" in school settings. The experiences reported are not unique to the Murray State project; they have occurred at many other Teacher Corps sites and no doubt foreshadow the need for new, sharply different approaches to inservice education.

BEYOND FIELD-BASED TEACHER EDUCATION: THE CONCEPT OF RESPONSIVE INSERVICE EDUCATION

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The role of the teacher education institution in staff development programs, never really clear in the past, has become even more nebulous recently. Whether we like it or not, state legislative and state certification agencies, by requiring graduate degrees for standard teaching credentials or pay raises, have placed the university squarely in the middle of teacher needs for certification. However, other avenues for certification have begun to appear in the form of school district inservice programs, teacher centers, and professional consultants or facilitators, which are challenging the hegemony of institutions of higher education in the areas of inservice education and staff development. These alternative programs have arisen primarily in response to teacher dissatisfaction with higher education programs as meaningful vehicles for change and self-renewal. The college of education faculty which ignores the challenges that these alternative programs raise, runs the risk of becoming isolated from the mainstream of public education (and doomed to the oblivion which it so richly deserves). Furthermore, there is a limit to the demands that can be placed on teachers' time, and the notion that both school districts and universities can continue to develop extensive parallel inservice training programs seems to us to be financial and professional folly.

This paper explores a concept which we have called **field-responsive inservice education**, which we think represents a higher education response to the challenges of alternative inservice education and staff development programs. The field-responsive concept has emerged from the experience gained through our participation in a Cycle X Teacher Corps Project involving Murray State University and Hopkinsville (Kentucky) Middle School. For us, field-responsive inservice education represents a program by which a college of education faculty might reach out to the field and form collaborative relationships with individual schools and school districts. We have not abandoned what we perceive to be our traditional function as professors of education, but we recognize subtle shifts that have occurred in the way we perceive our roles as college professors as we have moved from a college-based, through a field-based, and into a field-responsive program of inservice education.

In the traditional college-based program, teachers are injected into a program which is basically predetermined in terms of substance and format. They are removed, for almost the total period of instruction, from their own school environment and placed in the college classroom. They are isolated from their peers and their support base, and subjected to a program that is built around the notion that if they change their teaching behavior, schools will be better places for kids. They know, however, that regardless of what they hear or learn, they are still going back to the same schools, the same classrooms, with the same principal and fellow teachers, and they also know that the college instructor is not going there with them. (The college instructor is aware of the latter fact also, which is part of the problem.) What must result from such an encounter is mutual discussion of relatively "safe" topics which can be generalized in the neutered environment of the college classroom, the sum total of which roughly satisfies course requirements for graduate programs specified by the university or some other agency. Neither gains meaningful insight into the competencies or needs of the other, because neither sees the other in the real school environment. Field-based programs, although they occur on the teacher's home ground, typically represent little programmatic change from college-based programs. The college professor is on site, and may spend some time in the school or classroom, but the program emphasis is still upon the predetermined curriculum and the objectives of the university graduate degree program. Although variations in activities and evaluations might occur, basic decisions concerning substance, format, and credit are determined by whatever vague forces (often political forces within the college) have shaped such graduate programs traditionally.

Our initial intent in Teacher Corps was to establish a field-based program, but a number of factors led us to reject the field-based concept, and to develop the idea of field-responsive inservice education. The most important of these factors was the fact that we, as college professors, were not really prepared to deal with teachers on their home ground. We all had experiences as consultants in these schools, but not where we had to keep coming back two days a week for two years! We became accountable and had to accept some ownership for what was occurring. As the concept of field-responsive inservice education emerged, negotiation became a way of life. The focus of the program was determined neither by the college professor nor the classroom teacher, but was negotiated in both content and form. Our inservice program began to require on-site decisions about objectives, time requirements, amount of credit, and possible activities. We began to recognize that field-responsive inservice education would require a new way of structuring graduate programs in education in a number of key areas. In what follows, we will describe our experiences within five of these areas:

1. The process of setting objectives at an inservice site.
2. The appropriate role for professors in inservice programs.
3. The definition of the "official" graduate program.
4. The management and administration of inservice programs.
5. The focus and targeting of graduate programs in education.

Negotiated Objectives: The Interface Between Practitioner Needs and University Capabilities.

The experience of MSU Teacher Corps is that a unilaterally determined inservice education program has a number of drawbacks. For example, if it is important to actually see change occurring in the school as a result of inservice efforts, then it is unacceptable for teachers to be uninvolved or minimally involved in deciding what the college faculty is trying to do. It has been our experience that when teachers are not involved with the inservice program from its inception, that the phenomenon of teachers merely "taking up space" in the program becomes much more common. We have found it critical for the inservice program to reach right into classrooms, and for a sense of partnership to develop if the climate of change which we seek to promote is to occur. We have also found that effective and on-going negotiation about the nature of the inservice program is a good indicator of the degree to which change is occurring in the school (and also in the college of education). As professors of education we have had to discover, sometimes painfully, that we need to do some things to insure that negotiation and change will be present in the program.

We have had to find out, for example, what people are actually concerned about in their school and teaching, and then to meet them half-way in structuring what we consider to be a reputable inservice graduate education program. We have found that, although needs assessments are extremely important, it is in the process of negotiating about inservice programs that we really find out what people want and are concerned about. It is also in the process of negotiation that both professors and teachers take ownership of the program that is evolved.

A second thing that we have had to do to promote change has been to move in the direction of increasing individualization in inservice activities. The more individualized our programs are, the more productive they seem to be. However, the individualization itself must be based on agreements reached between the teachers and the inservice team on what the inservice program is to be concerned with. The experience of our Teacher Corps Project suggests that the greater the amount of contact between professors and teachers through visits and consultation, the more results will be observed as changes occurring in the program at the school site. As the relationship between the teacher and inservice faculty member becomes closer and more cooperative, by focusing on problems that are real for both of them, the activities and projects in the inservice program tend to become increasingly intensive and demanding. The level of tension in the program increases as it becomes more meaningful and important to the participants, and the possibilities for frustration in the inservice faculty increase as pressures for individualized activities begin to conflict with pressures for a unified set of activities which will meet the needs of the college faculty for a cohesive graduate education program.

Negotiation becomes a critical factor in dealing with these tensions and frustrations, as problems almost inevitably affect groups and individuals in all parts of the program, both at the school site and at the college of education.

A third factor that we have found to be important in promoting negotiation and change has been the development of procedures which encourage significant contact with teachers in their classrooms. We have found that in making change in teaching behavior, our successful impact rate has soared as we have started spending more time in the classroom than in large group meetings. Activities which focus on professor-teacher interaction in the teacher's classroom seem to encourage cooperation and cohesiveness between the university staff and the teaching staff, whereas large-group oriented activities seem to lean towards the teacher-student relationship with more time spent in controlling and directing behavior on the part of the professor. On the other hand, it must be admitted that our desire for individualized work tends to dominate, and we have had trouble dealing with needs that we have felt for large group instruction and required group activities. We hope that as we get better at working with teachers on an individual basis, and handling the negotiation process, that we will gain skills in a more pro-active trade off between large group and individual activities.

A fourth factor which has been gaining importance in our inservice work, has been the phenomenon of teachers interacting with us as a group or a block, rather than as individuals on many work issues. Typically in graduate education programs, matters of policy concerning credit and work requirements, for example, are worked out between the individual professor and the individual student within the context of university or department rules. We have found from the beginning, although our official policy had been to continue this mode of interaction, that the nature of the program made it difficult. The "instant feedback" the teachers gave each other about all of their interactions with the university staff and their many opportunities to get together for mutual reinforcement made it very difficult for individual problems to remain individual problems. In a sense, the need to confront "public opinion" on many issues forced us to deal continuously with a number of teacher concerns which we might have ignored in a more typical college classroom situation.

The need to work as a team has caused the college of education faculty members to feel a sense of loss of autonomy and even, at times, a feeling of compromising of personal values and standards as program decisions have had to be made. On the other hand, there have been many feelings of exhilaration as great strides have been made by the teachers and teacher faculty towards higher levels of sophistication in program design and implementation. There is no doubt that the utilization of a field-responsive approach to inservice education and staff development has forced some new thinking on the nature of "college professor" in this new situation.

Changed Role For Professors: Scholars As Change Agents

There is no doubt that the college professor members of the project, working as an inservice education and staff development team, have felt some ambiguity about their roles. In expanding their functions in the field-responsive program, they have gone beyond the role of teacher trainers and become almost change agents for quality education. The ambiguity in this role has not come about primarily through doubts about personal capabilities to deal with these functions, but rather in response to concerns about the capability of the college of education graduate program to stretch to fit the emerging field-responsive way of working with teachers. The professors have felt extremely positive about the outcomes of the Teacher Corps Inservice effort, but have been concerned about the response of campus-based colleagues to the liberties that have had to be taken with the standard graduate program. These concerns have arisen as field-responsive professors have assumed new roles, and particularly as they begin to work as members of the inservice instructional team.

Typically, professors have had tremendous latitude in the way that they operate their courses. Working within loosely defined guidelines, they have been free to structure content, develop grading criteria, and serve as final arbiters on questions of theory or method. In interaction with the larger college faculty, each professor has had the role of autonomous professional, accountable for his own actions. When professors begin to operate in what we have termed field-responsive inservice and staff development programs, however, much of this autonomy must be sacrificed for the effective functioning, of the inservice team and the success of the school change program. Grades, objectives, and activities must be arrived at through team functioning, and because of the need to negotiate as a team with the school faculty, there must be a high level of agreement among the inservice team members. If this agreement does not exist, the areas of disagreement will surely surface at the school site and cause problems as teachers respond to ambiguities they sense in the program implementation—especially in terms of inservice requirements and grading criteria. The loss of autonomy inherent in team functioning challenges the concept that many staff members have of themselves as "professor" and requires a new accommodation to the requirements of the field-responsive situation.

Although increased individualization and in-classroom cooperative relationships have greatly increased the change which results from the inservice and staff development program, they have also brought some problems for the role of the professor. In responding to what we have perceived as increased effectiveness, we have found ourselves steadily increasing the amount of time devoted to this new style of working with teachers and decreasing the clock hours devoted to more traditional styles of class sessions. Whereas in the more traditional inservice programs classroom visits are seen as an "extra," in the mode that has been evolving in the MSU Teacher Corps Project they have become mandatory and part of the staff **modus operandi**. We find that if professors miss days on-site when they are scheduled for classroom visits, the teachers increasingly resent it. They also increasingly resent large-group inservice time which takes away from their own time for personal projects. The field-responsive mode of inservice and staff development programming is particularly demanding of professor time and seems to generate recurring problems for scheduling and program requirements. Since the inservice staff must ultimately attest, in some fashion, to the fact that the school faculty has successfully completed an approved graduate program, there is a critical need to conceptualize and manage a complex mix of personal and small group projects and large group activities.

Although the new role for the college professors in the MSU Teacher Corps Project brings with it problems and frustrations, it also provides great opportunities for advocating better education for children and better working environments for teachers. The opportunities inherent in field-responsive programming to develop strategies which will produce observable program change and development provides the motivation for professors to cope with the frustrations which are generated. In addition to working as supervisors, the college faculty make many friends at the school site, deal continually with the school administrators, meet and interact with district personnel, and generally find themselves in situations where they can have significant interaction with all of the people who are necessary for putting new programs into operation. However, these opportunities have brought with them increased needs for cooperation, a team spirit, and, ultimately, many many more meetings. In a temporary system, which a field-responsive inservice and staff development project represents, staff meetings are the vehicle for all decision making. The need to make these meetings productive and effective has been a difficult challenge, requiring considerable discipline and strong leadership. The style of the meetings is different from the usual faculty meeting, because the required output must be continuous, practical, and effective. The management function is critical in field-responsive projects, and the flexibility required for effective management places considerable strain on the traditional way of organizing college of education graduate programs.

Redefining Graduate Programs: Continuous Progress Individualization At The Graduate Level

All that has been said earlier, in relation to individualizing programs, negotiation and change, and a team approach to program development and implementation points to the fact that a different way of conceptualizing university graduate programs is imperative if the field-responsive concept in inservice education is to be viable. The sheer fact is that it is very difficult to carry on a field-responsive program within the confines of three-hour courses formulated into predetermined sequences. In a three-hour course format, it is almost inevitable that conflicts will arise between the directions taken by the inservice team and an individual college of education faculty member's understanding of what typically goes on in courses of particular names.

Part of the design of the MSU Teacher Corps Project was that the participants should earn a master's degree or 30 hours above a master's degree as a result of their participation in two years of inservice and staff development programming. In concert with the State Department of Education, the coordinator of the Secondary Education Program and the University registrar, a match was made between the stated objectives of the Teacher Corps program and the University Secondary Teacher Education program. This match was in terms of time requirements, program content requirements, and degree requirements. From the beginning of the project, it has been the intent of the Teacher Corps staff that there should be as much congruence between the University graduate program and the Teacher Corps graduate program as possible. However, there is no doubt that the actual content and form of the two programs are, on the surface, quite different. However, the fact that the two programs are different has not dissuaded us from thinking that field-responsive programs ought to be as much like college-based programs as possible. It is our feeling that emphasizing the commonalities of the two types of programming provides the essential conceptual structure which allows the college professors on the Teacher Corps staff to work together in very different roles from traditional college-based faculty members. However, the inflexibility of the basic college of education graduate structure makes a realistic and above-board accommodation with the field-responsive program very difficult.

During the two years of the MSU Teacher Corps Project the participants earned credit for specific courses in the standard secondary teacher education graduate program. However, due to the nature of the field-responsive program, the actual course names for which the participants were given credit, might not have fit their inservice and staff development activities at a given time. Whereas, over the span of the two year project, the teachers actually gained the skills specified in the courses for which they were given credit, the use of course names to identify the skills or knowledge that teachers were gaining during specific time blocks did not prove to be very accurate or helpful. In a sense, the use of course names and numbers forced us to take too long a view in our planning. We constantly had to refer back to the original project objectives in aligning the inservice program with the college of education's graduate program. We did not have meaningful intermediate course-type titles which we could use to identify and discuss what was actually happening to the teachers. This put all of us at a disadvantage in talking about the gains that were being made in the program, because credit or certification of competence was actually deferred until the granting of the degree or certificate...which did not occur until the end of the project. In a field-responsive program we see a real need to have more flexible ways of identifying both goals and goal attainment within the overall college of education graduate program. We do not see elective numbers, independent studies, or general "Topics In.." courses as an answer, because the over-use of these mechanisms sidesteps the issue of the students' overall progress toward ends which the college of education and its faculty can certify as significant and coherent in terms of complexes of skills and knowledge. (That the general college of education faculty approve of field-responsive programming is critical, because all of the members of the field-responsive program team fill two roles—that of field-responsive team member and also that of college-based faculty member.) We see the need to be able to take "smaller bites" of the graduate program, and to be able to add these "bites" up to a complete graduate program. At the very least, we see the need to offer credits routinely in sizes other than three hours, so that the amount of credit given can match the amount of work undertaken by the participants and the inservice team.

Our work in the MSU Teacher Corps Project has identified what we feel to be several important components of the process by which specific objectives and activities are agreed upon. The first component is to identify the context in which the field-responsive program will function. By context we mean the constellation of problems and issues that the program will focus on. Identifying the context in terms compatible with the terms used in the college graduate program makes it possible to select, from the overall offerings of the university, the specific content which will be applicable to a specific field-responsive program. The selection of content in reference to context also keeps all members of the staff in the same ball-park when talking about possible activities and objectives.

The second component is the identification of the short-term problems or needs that are to be addressed in particular parts of the program, and the initial statement of inservice objectives. This is done both through needs assessments, surveys of the teacher faculty, and through reference to a steering committee representative of the teaching faculty.

The third component consists of organizing possible sequences of activities by the inservice team and the negotiation of these activities with the teacher steering committee (in lieu of negotiation with the entire teaching faculty... a process which we see as being prohibitive) as to the final form of the objectives and activities.

The fourth component is the process of deciding on the form that credit and/or certification will take. In a sense, the fourth component consists of placing the negotiated objectives and activities into perspective against the overall graduate program. In the Teacher Corps Project this has been very difficult. Without being able to match the amount of credit and the title of the skill or knowledge with what was actually being done, both the teachers and professors had to constantly refer to their own internal understanding of "graduate programs" to decide whether or not what they were doing was reasonable, sufficient, or reputable. If we had been able to refer to a model of a graduate program which fit our way of working, it would have been much easier to check ourselves and our work against meaningful standards. It would also have been easier to describe our program to our colleagues at the university.

Management Of The Accommodations Between Graduate Programs Developed On-Site And The "Official" Umbrella Of The Various Departments

As we have worked in Teacher Corps it has become obvious to us that some special changes need to be made in the way that business is carried on at the university if a field-responsive program is to be pursued. We are acutely aware that much of our own success is due to the large amounts of extra funds which are available to us for "buying" the services which we need in working in the way that we do.

The key to a demonstration project such as ours is that the staff works very hard to conceptualize what it is doing in a form which is useful for others. (The process we have called **describe**.) This conceptualization attempts to pinpoint not only the successes which have occurred, but also the problems which would be encountered if the program were adopted "without funds." With this in mind, we have identified a number of issues or problems which will probably face any university department embarking on a field-responsive program.

1. Graduate programs must be altered to the extent that field-responsive programs can count as part of the regular program, rather than as experimental programs with special rules.
2. Professors who work in field based programs will have to spend tremendous amounts of time with the programs. Time will need

to be found for instructional team meetings and also for many hours of work in the field.

3. University departments who enter into the field-responsive arena will have to reconsider how they tabulate work load and working hours if professors are going to feel that they have a base of support in spending the hours that they do in the field-responsive program.
4. Universities will have to rethink what counts as being a "good faculty member" when it comes time to hand out rewards. If field-responsive professors see all special favors going to those professors who work on committees and outside research leading to books, then they will not be motivated to work with field-responsive inservice education.
5. Special support will have to be organized for preparation of research materials and study supplies. When professors teach four courses over a number of years, it is not unreasonable to expect that course development is an integral part of their load. However, when professors are involved with several field-responsive project sites, which probably change frequently, working in an individualized mode, expecting to provide expertise and technical support for change in schools, it is unrealistic to expect that they are going to have time to do adequate course development. In the Teacher Corps Project, we have found that the services of materials development specialists are indispensible.
6. Almost by definition, each project will be innovative to some extent. At least, we can expect the activities and objectives to vary for each project. These variations are going to pose problems for university faculties as regular decisions must be made about appropriateness, standards, certification, etc. We see a real need for university-based mechanisms for dealing with these problems.
7. Our experience in the field has been that regular advisement procedures for students are very difficult in a field-responsive program. Reliance on the usual procedure has caused us endless problems and misunderstandings. We see a real need for a centralized office to handle advisement. We have found it almost impossible to get all of the students together with their advisors, to get them together when conferences are needed, and above all, to make sure that advisors "have the same story" for the teachers. We recognize that these concerns are problems in any program, but in a field-responsive program, where the teachers respond so much as a group, problems of advisement seem to almost immediately get blown out of proportion.
8. The role of a field-based coordinator of field-responsive programs seems to be critical. Someone needs to be out in the field making sure that projects go.

Summary

In summary, the use of the field-responsive model provides the means by which inservice education may become more frankly experimental and theoretical. In the past, utilizing either the university-based or field-based course model, the plan for instruction was almost entirely didactic. The end was almost entirely the transmission of knowledge and skills. In the field-responsive model, however, the concern is not only the transmission of knowledge and skills, but also the solving of educational problems and the evaluation of methods. In the field-responsive situation, the university field team has access not only to teachers, but also to real-life situations and children. In working with the teachers, it will be possible to design intentional experiments in teaching method while conducting inservice education.

To us, it seems clear that the field-responsive model opens up many new avenues of growth and possibilities for the university. It revitalizes a commitment to the improvement of public education, to research and scholarship, and to an active and on-going examination of the most effective form for graduate inservice teacher education programs.

CLASSROOM OBSERVATIONS & CONFERENCES WITH TEACHERS
A TYPE III DIFFUSION

by
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Classroom Observation and Conferences with Teachers (COCWT) is the formal title for a Type III Diffusion workshop which was used in the FSU/FAMU-LEON Teacher Corps project, Tallahassee, Florida. It is a program designed to help teach leaders and supervisors how to help teachers change their own classroom behavior. COCWT, a diffusion package, contains a training manual, audio training tapes, participants' manuals, overhead transparencies, and other materials for the trainer.

After a brief description of the process for the orientation of the readers, this chapter contains an overview of the description, development, documentation, and dissemination phases as they pertain to this activity. The major emphasis, however, will be a presentation of the components of a Type III Diffusion workshop which was developed to train others in the process.

Readers of this monograph with Teacher Corps experience will recognize many similarities between the Santa Barbara Training Materials (ISTP) and this process. Both, in fact, trace their conceptional history to the work of Richard Anderson and Morris Cogan at the Harvard-Newton project in the late fifties and early sixties. During the early stages of development of the Santa Barbara materials, those materials served to supplement training in the COCWT process which was provided to over 4,000 educators through the Los Angeles Staff Development Program and the Association of California School Administrators. Currently the situation has reversed itself in Teacher Corps projects; the COCWT materials are the supplement to the well-developed ISTP program.

THE PROCESS

The activities normally associated with this process are based on two assumptions: (1) Most teachers have theoretical knowledge of appropriate classroom management, teaching and learning skills which far exceed their operational knowledge. That is, teachers know what is appropriate for a child but often lack the skills to carry it out. (2) Many of these teachers have simply never taken the time to observe and analyze their classroom activities to see what relationship exists between specific plans and actual results. Although we test students for learned concepts or skills, we seldom "test" to see if the teacher's actions had the intended consequences.

The point of view of this instructional supervision process is that the most effective role for the supervisor is to provide feedback to help teachers see themselves as they actually are and to work with them to improve the skills they want to improve. Only when teachers are able to do what they intend can much progress be made toward getting them to do what they should be doing.

The process does not suggest that there is one most appropriate technique that everyone should use in observing a lesson or in conducting a conference with a teacher. In these areas, as in most aspects of education, there is no single panacea that will ultimately solve all the problems faced by teacher trainers. Instead, the supervisors and teachers learn several techniques that they can use to observe themselves, to observe others in the classroom, to gather information which will be helpful to improve teacher behavior and the achievement of students, and to communicate this information to teachers in such a way as to prompt changes in behavior. They acquire techniques for recording accurate, objective, useful, and persuasive data which can be a catalyst for teachers to change their own behavior.

This Diffusion Workshop is intended for teachers who supervise student teachers, for teachers who observe and plan with colleagues on teams or in differentiated staffs, for supervisors of inservice teachers, for Teacher Corps team leaders and school administrators. It has two major emphases—observation and conference. In the workshop, several techniques of observing and recording data are developed. The participant becomes familiar with ways of collecting data for teachers to use in analyzing, planning, and improving their teaching activities. Instruction and practice are provided in observation techniques which focus upon verbal interaction, on student participation, on movement in the classroom, on intellectual behavior, and other common classroom phenomena. Participants acquire a variety of methods for obtaining accurate and useful information about the teacher, the students, and the instructional setting.

Other lessons concentrate on skills needed in the conference. Two main functions are emphasized — providing data to the teacher in non-evaluative forms, and encouraging the teacher to identify problems, propose tentative solutions, and draw inferences from the data. Instruction and practice are provided in planning, observing, and conferring with one or more teachers using feedback about the conferences to analyze and modify the supervisor's behavior in the conference setting.

Essential to the success of these techniques is the ability of the observer to tune-in on the teacher's concerns through listening, acknowledging, avoiding direct advice and negative criticism, and by using "open" rather than "closed" statements and responses.

Description

The description phase of this project was begun almost two decades ago by Professors Anderson and Cogan at the Harvard-Newton project. A need was identified at that time for a supervision program which utilized the Rogerian "helping" relationship concepts. Both theoretical and empirical data indicated that individuals would be far more likely to change their own behavior if their own **intent**, their own **actions**, and **feedback** concerning each would be the basis for the change process. Thus, a theoretical model — Clinical Supervision — was derived (Cogan, 197-). After substantiation through an exhaustive literature search, the initial development process was begun.

Development

The developers of COCWT were trained by Morris Cogan and others, and used Clinical Supervision techniques in teacher education programs for several years. The ideas of the original developers were tested, validated, modified, adapted, and evaluated by the COCWT Team and trained graduate students over a period of several years. In 1970, the COCWT developers obtained a contract from the Far West Educational Laboratory to develop an interactive workshop package — a mini-course usable in a group setting. The steps taken in the development of this Type III workshop could easily fill another chapter in this monograph. The developers quickly learned that a vast difference existed between having a validated usable process and being able to export that process to others in a workshop setting.

One lesson they learned was that the development phase of the Demonstration cycle must be followed in the development of a Diffusion Workshop, just as it must be followed in the development of the original idea. The early "pilot tests" bear little resemblance to the current workshop. Teachers and Supervisors in Florida, California, Oregon, and several other locations probably helped the developers more than they helped themselves. Each workshop conducted between 1972 and 1974 was carefully documented so that data were available as suggested in Table 8 — Evaluation Activities in the introduction to this section of the monograph.

Since planning and developing a Type III diffusion workshop is not the focus of this chapter, suffice it to say that a well-evaluated diffusion workshop must "go through" several trials before the developers can be confident that the skills are acquired by the participants. This is necessary if one accepts the assumption that diffusion does not happen until the recipient can replicate the skills.

Dissemination

One of the most frustrating aspects which managers of diffusion activities will experience occurs when the developers are satisfied that they have a validated product or process and also have a validated diffusion workshop capable of teaching others to replicate those products or processes but they have no client system ready and eager to acquire those skills.

The developers of the diffusion effort made presentations at local, state, regional, and national conventions, wrote articles and announcements for professional publications, provided "sample" workshops without renumeration, distributed instructional materials on a wide front, and used an "each one add one" method for building a knowledgeable receptive client system. Until such time as funds are available to support the demonstration mandate, most "demonstrators" will find themselves in a dilemma. Teacher Corps is one federal agency which has attempted to provide for this through its recruitment, training, and resource (RTR) activities, its regional networks, its special purpose clusters and loops (e.g., Research Adaptation Cluster), its many newsletters (e.g., INTROSPECT), the national conferences, and its development branch. Other funding sources must follow their example if the demonstration mandate is to be more than a "paper" regulation.

The Diffusion Workshop

The workshop has been conducted over 40 times since its development. One of those was when it served as the initiation point for staff development assessment in the FSU-FAMU/LEON 10th Cycle Teacher Corps project. The skills acquired by the teachers were used for self-assessment and student assessment throughout that project.

The workshop is designed for 15-30 educators and meets in two segments: a two-day session followed by a third day several weeks later. It has been conducted for larger groups, for both shorter and longer periods, and in differing combinations of time, but the 2-1 day combination has been found to be most effective. Workshop components are designed in three hour segments so that it is translatable into a normal college course format.

Sample Schedule

Day 1

Activity	Timing	Grouping
1. OBSERVATION I	8:30-9:15	Total
2. SELECTIVE VERBATIM	9:15-11:00	Total
3. OBSERVATION II	11:00-12:00	Triad in classes
4. AT TASK	1:00-1:45	Total
5. OBSERVATION III	1:45-2:30	Triad in classes
6. PLANNING CONFERENCE	2:30-3:45	Total and Triad

Day 2

Activity	Timing	Grouping
7. SCORe INSTRUMENTS	8:30-10:00	Total
8. OBSERVATION IV	10:00-11:00	Triad
9. THE CYCLE	11:00-12:00	Total
10. FEEDBACK CONFERENCE	1:00-3:30	Total and Triad
Summary	3:30-4:00	

Day 3

Activity	Timing	Grouping
11. SHOW 'N' TELL	8:30-9:00	Triad
12. PLANNING CONFERENCE	9:00-10:30	Total
13. OBSERVATIONS	10:30-12:00	Total
14. FEEDBACK CONFERENCE	1:00-3:30	Total
15. CHANGING BEHAVIOR	3:30-4:00	Total

Participants are divided into groups of three in such a way that no two people from the same school are together, known antagonists are separated, no one is in a group with his "boss," and communication and interaction are not impeded in other ways.

The workshop MUST BE held in a school setting for the first two days. The workshop has at least seven different activities which demand involvement of teachers and classrooms during those two days. Observation, the primary focus for those days, cannot be "learned" without practice. The workshop leader must arrange for this involvement of staff when organizing the workshop.

In spite of the school setting, every effort is made to reduce the "institutional" atmosphere. Coffee, tea, and other refreshments are available before the session and throughout the day at the participants' options. Lunch is organized at a nearby restaurant but within the time allotted.

Activities are organized for a 6-½ hour working day. By their actions, trainers "teach" the group that meetings start on time. Participants who cannot attend for the complete sessions are encouraged to wait for another opportunity when they can be free.

A Type III diffusion workshop differs from the previous two; in the latter trainee interaction/participation sets the mode and the pace. Also, simulation or on-the-job practice must be a part of this workshop.

The plan for the workshop has participants establish their current "set" about "changing teacher behavior" during an opening session. Then, following a review of the presenter's assumptions, the participants are engaged in the following pattern:

		Session
1)	New Information	2,4,6a,7,10
2)	Practice in a Classroom (or with Teachers)	3,5,6b,8, 10b
3)	Review and Discussion	3b,5b,6c,9,10
4)	Repeat 1-3 with New Topics	

As can be observed from the sample schedule, participants have four opportunities for practice in observation.

1) Observation I — A stage setting observation of an audio/video tape lesson. (This quote and others which follow are taken from the COCWT trainers manual.)

> "This exercise is designed as an active opener -an activity which will get each participant involved. Introductions and administrative details of a workshop should be delayed until the last few minutes of the activity. Participants will listen to a tape recording of a lesson and record such observations as they want to. Following the lesson they will discuss their observations in triads."

2) Observation II — After presentation and discussion of techniques of observing verbal and non-verbal classroom behavior, participants go in groups into classrooms to practice the new skills. Some limited practice is provided during the initial presentation from mediated lessons.

> "Each participant triad will visit a classroom to record these different types of selective verbatim data. The visits will be arranged prior to the workshops in classrooms where discussions will be held at the time of the visit. Participants will record questions, responses, and other classroom verbal behavior unless the teachers indicated some other data they wanted. The visits should not last longer than 20 minutes. Following the visit each triad will discuss both the observation techniques and the teaching. A short total group discussion of the techniques, their use and appropriateness should conclude the activity."

3) Observation III — In the previous "input" session, information and techniques for observation of task orientation of students is presented and practiced. This session again enables the participants to enter a classroom and "try out" the suggested techniques in a real setting.

> "Participants will not learn observation techniques unless they use them during the learning process. This activity is designed to afford an opportunity for the participants to go into classrooms and record "At Task" data. The intent of the observation is to help each participant identify questions about his use of the technique — both mechanics of use and the appropriateness of use."

4) Observation IV — In the intervening sessions, participants simulate conference behavior and actually conduct a conference with a volunteer teacher. This conference is designed to plan the fourth observation. Participants go to the teacher's classroom and observe students, teacher, and interaction as the teacher requested.

> "In the repeated effort to provide opportunities for practice, this activity is designed to allow participants a chance to follow through on requests made during the planning conference (Activity 6) and, at the same time, obtain practice in the SCORe techniques presented in Activity 7.
>
> The same format used in Activities 3 and 5 will be followed here — a brief organizational time, 25-30 minute observation and time for analysis of the data and the problems of collecting it."

In addition to the opportunities to practice skills in observation, several opportunities are providing for practicing conference techniques through simulations as well as two actual conferences — one prior to Observation IV and the other following it. Both of these conferences are conducted after school.

The Planning Conference

> "The philosophy of supervision advocated in this workshop requires that a supervisor deal with the expressed (felt) concerns of the teacher. The logical place for this information to be shared is in a conversation, held prior to the observation. This conversation, which we call a Planning Conference, is the subject of the sixth activity.
>
> This activity is designed to present a suggested format for the conference, some practice exercises in two of the more difficult aspects of that format, and an opportunity for each triad to conduct a conference with one of the teachers from the host school."

The Feedback Conference

> "The afternoon of the second day has been allocated to the development of skills necessary in the Feedback Conference. Participants will analyze their planning conferences, analyze the data

collected in Activity 8, practice the nine Feedback Conference behaviors introduced in Activity 9, conduct a Feedback Conference, and analyze their own behavior. The activity is designed as an opportunity to practice the concepts reviewed and presented in Activity 9."

The third day was added after several pilot trials to provide time for review, presentation of new skills, and analysis of "first" attempts at using the process on the job. Excerpts from the trainers manual will provide the reader with a sense of the day's activities.

Activity 11 — Show 'n' Tell

"This activity is designed as a brief opener for the Day 3 program. Participants are afforded an opportunity to discuss what they've done — who they've observed and conferenced with and the results thereof. The end result of the activity will be a list of questions and problems which individual participants feel need to be dealt with that day." (Activity 11-3)

Activity 12 Planning Conference Review

"This activity is designed as an opportunity to review and expand knowledge and skill related to the planning conference. The trainer will review the component parts and provide tapes of planning conferences for analysis. Some role— playing will be conducted and items identified in Activity 113 relating to the planning conferences will be discussed."

Activity 13 Observation Review

"This activity will be very short in some workshops and overlong in others depending upon the enamoration of the participants (and trainer) with observation and data collection. The trainer must carefully weigh the "enjoyment" possible for examining everyone's "weird," "interesting," "unusual," "imaginative," etc, data with the importance of the total day's program. A common reaction of educators who are suddenly exposed to persuasive data is to want to spend time sharing theirs and looking at others. The trainer should encourage this up to the point where it goes beyond the activity's objectives.

The activity is designed to review the "observation" philosophy, to review specific observation techniques and the analysis of data, introduce other techniques which participants have found useful, share experiences and data, respond to Activity 11-3 items which relate to observation, and conduct an observation of a teacher in the host school."

Activity 14 — Feedback Conference Review

This activity will afford participants an opportunity to clarify questions and problems they have related to the feedback conferences, give them experiences analyzing conferences, provide each triad with a common conference to analyze, and in general, review the total supervision cycle. It will follow very closely the format of Activity 12.

Diffusion Components

In the introduction to this section, it was stated that diffusion activities had to provide for:

1)motivation
2)information
3)examples
4)practice
5)feedback
6)generalizability

The COCWT process operationalizes these concepts not only in the diffusion workshop but, to a large extent, the process itself.

Motivation

Motivation is not something done once and forgotten. It is built and enhanced from one's first contact with participants. Information in promotional literature, legislated mandates, one's internal "drive" for improvement, word of mouth, and the need for recognition and praise are all useful in the enhancement of motivation. Some participants in COCWT activities were motivated to be involved by reading a brochure which stated:

Quote

"The objective of this program is to help the supervisor conduct observations and conferences which result in a change of behavior on the part of teachers."

"The participants will learn techniques for the collection, analysis, and presentation of accurate, objective, useful, and persuasive data which can be a catalyst for teachers to change their own behavior."

Others heard presentations at conferences. Still others were told to attend by the administrators or graduate advisors.

Whatever the motivation which caused a participant to attend, once the workshop starts, the enhancement of motivation and other nongoal-oriented functions becomes the obligation of the trainer. Workshop setting, time (both during the day and during the year), pacing, response and feedback, and the trainers' interpersonal skills were all manipulated during the pilot stages of development in order to determine an optimum "mix" between goal-oriented and nongoal-oriented aspects. In some instances, trainers and training groups were "matched" to facilitate the achievement of the objectives.

Presentation of Information

New information is provided in the techniques of observation and conducting conferences. What is new is not the data collection and feedback idea itself but the "packaging" of validated skills into a process which works. Participants do not just learn 13 observation techniques and 14 conference behaviors, per se; instead they learn to match observation methods with teacher needs in a conference setting.

Examples of Content and Skills

Examples of content and skills are provided in the participants' manual, the training materials, and the trainer's instructional aids. The most useful examples, however, are not those the trainer brings to the workshop, but are, instead, those the participants produce in the practice sessions.

Opportunities for Practice

The provision of these opportunities is what differentiates a Type III workshop from the two previous ones. Earlier information in this article has addressed this point.

Feedback

Behaviors of the participants in role-played, simulated, and actual conferences are recorded, analyzed and critiqued. Feedback is provided both by workshop participants and by the trainers. Similarly, observation data collected and used in practice sessions during the interim prior to day 3 are shared with other participants and critiqued as to techniques, usability, and appropriateness.

Generalizability

Since improvement of instruction is a goal of all educators, a process which provides teachers and administrators with skills useful in meeting that goal can easily meet the tests of generalizability and applicability in other settings.

Diffusion differs from dissemination, as noted earlier in this monograph, when the workshop leaders assume the responsibility not only of presenting new information but also of assuring that participants acquire the skills themselves. COCWT developers have contributed several studies to assure that, in fact, skills can be acquired and that, back on the job, they're useful in the improvement of instruction.

The following case study illustrates a Type IV Diffusion. The project has all four types of activities. Materials were generated at the demonstration site, revised and made available to teach others. At times someone from the demonstration site presents the materials. When funds and time become available, interactive workshops are provided and technical assistance is given to those who request such help.

TYPE IV DIFFUSION GLASSBORO STATE COLLEGE/CAMDEN CITY SCHOOLS

by

George Brent
Glassboro State College

The Glassboro/Camden 10th Cycle Teacher Corps Project is a cooperative endeavor of Glassboro State College and the Camden City Public Schools. The project is designed to meet the needs of Camden students in the Forest Hill Elementary School. Specifically, these needs pertain to deficiencies in basic mathematics skills. To meet these needs, the project employs a teaching and measuring technique called Precision Teaching, which we have found to be successful. Its success has generated interest in other New Jersey schools. After giving a brief description of Precision Teaching and its application at our demonstration school, we will sketch out the history of our efforts at diffusing Precision Teaching information to these interested school districts.

Precision Teaching Measurement Principles

Precision Teaching is a system of monitoring weekly learning (i.e., the change in the growth of a particular performance). It is a unique system in that it measures not only performance, but also improvement in performance: **learning**. The system involves charting daily student performance on a standard chart which is included in Figure 32, evaluating the charted performance in terms of its learning environment in accordance with information gained from the charts. These data-based decisions to improve teaching are the products of Precision Teaching.

The first requirement of the system is that an academic or social performance be functionally defined. In Precision Teaching, the process of specifying objectives is called "pinpointing" and the objectives pinpointed are functional "movement cycles." An objective that is defined as a movement cycle

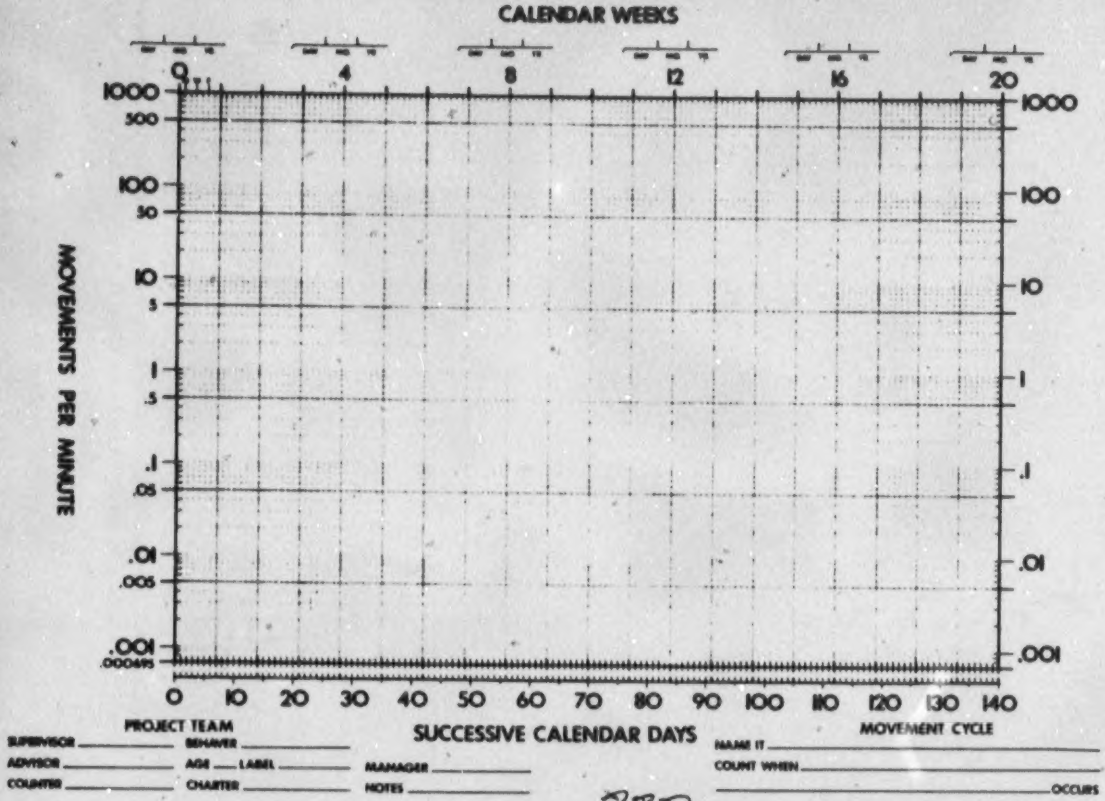

Figure 32
Daily Performance Summary Chart
Used in Precision Teaching
To Record and Analyze Student Performance

will be countable, contain action, and be repeatable. For example, the writing of digits is a movement cycle which is the source of an objective that may be stated as: "to accelerate writing digits from 10/minute to 100/minute by March 10, 1976."

Movement Cycles are measured in terms of their frequency, i.e., occurrence per minute. Frequency is used for many reasons. One reason is that frequency is something all performances have in common and therefore can be used as a universal measure. A second is that frequency is sensitive to change in the environment. A third is that when frequency is charted properly, both speed (frequency) and accuracy (percent) are retained.

For the purposes of communication and analysis, data is usually recorded on the standard ratio chart. This chart is designed so that frequencies are plotted in terms of their proportional relationships to each other. Since Precision Teachers usually use the same chart and similar charting conventions, communication is increased both within and between schools. Most important, however, are the features of the standard chart that allow accurate data analysis in terms of both frequency (performance) and celeration (learning). The design of the chart assures that relative changes in frequencies are displayed such that "...you can project the future course of behavior by drawing a straight line through the middle of the daily frequencies you've charted. The direction of this line shows whether the frequency of performance is increasing, decreasing, or remaining the same." (Lindsley, 1971.)

Celeration refers to the direction of the line. Acceleration (↗) refers to performances multiplying, and deceleration (↘) to performance dividing. As an example, a learner's performance on addition facts to 18 on Monday is 10 correct/minute and a week later, on Monday, the performance is 20 correct/minute. The celeration is described as a times 2 change: 2 times 10/minute is 20/minute. The frequency was multiplied by 2. Individual celerations are measured over a period of one week and can be used as a standard measure to compare different periods of time, different objectives, and cross-cultural performances.

The celeration path is extremely important to the teacher. It provides convenient information for decision-making. The teacher knows a learner's starting performance level, current performance status, and **projected learning outcome.**

Precision Teaching Application

The model used by the classroom teachers at the Forest Hill demonstration school consists of a five (5) minute timed practice and a one (1) minute timing.

Each student is given a large manila envelope in which the student stores one week's supply of:

1) practice sheets (if they are used),
2) sheets for daily timings, and
3) answer sheets (if applicable).

The different sheets are divided by a piece of construction paper or oak tag within the large envelope.

The envelopes are stored on a divided rack placed in a convenient area of the room. Several methods are used for distributing these materials.

1) Students pick up their particular envelopes upon entering the room in the morning.
2) Individual students are assigned to distribute the envelopes by rows, tables, etc., prior to start of math period.
3) Students by rows or tables come and get envelopes prior to start of math period.
4) Students keep envelopes in their own desks.

The students are given a timed 5 minute practice period using various methods. This period is followed by a 1 minute timing. When administering the 1 minute timing, the following procedure is generally used:

1) The student places one practice sheet only on his desk.
2) His pencil is placed by the first problem or numeral.
3) Holding up the 1 minute timing device, the teacher gives instructions.

"When timer beeps, please begin. At the second beep, please put your pencil down. Remember to listen for the beep and not look at the timer. I am turning the timer on."

At the end of the 1 minute timing, the teacher may use several methods of collection.

Primary Grades

1) The teacher collects all practice sheets.
2) Practice sheets are passed to the end of the table or row and teacher collects them.
3) The teacher and supportive personnel correct students' practice sheets immediately after timings. The teacher calls students' names (usually alphabetically) and writes their score and allows each student to compare his score with the previous day's score. If the student's paper has not been corrected by the time his name is called, the teacher corrects his paper immediately when the student comes to her and then records his score. Recording scores usually takes approximately 10 minutes using this method.
4) When students are capable of self-correcting, they can do so.

Intermediate Grades

1) Prior to collection, the student self-corrects practice sheets using an answer sheet.
2) The student records his scores on an individual raw data sheet.
3) The student records his score on the chart (when applicable).
4) The teacher collects practice sheets.

All Levels

The teacher collects sheets or scores and records the number correct and incorrect on her own raw data sheet.

Sometimes, the teacher will also give a "special" timing to see if students have reached their individual weekly aims.

By the end of the project's first year, it was evident that Precision Teaching had added a valuable process to the teaching of computational skills. The procedures were working smoothly with all the classes involved and data indicated that pupils were improving their mathematics skills. Success was determined by both internal and external evaluators using the following criteria:

1) The research adaption procedures were actually used in the classrooms.
2) The procedures were positively accepted by both teachers and students.

Objective observations by trained personnel and subjected comments verified the application and acceptance of the research adaptation procedures. Criterion-referenced tests indicated that academic skills did improve. At this time, the project's staff was anxious to diffuse the Precision Teaching procedures but lacked a vehicle to do so.

The Glassboro-Camden proposal included several methods of diffusion. The following Florida State University model summarizes our methods.

	I.	Provide materials that teach about
F		the product or process.
S		
U	II.	Provide materials and person(s).
T	III.	Provide materials, persons, and
Y		activities, e.g., simulations,
P		feedback, generalizing.
E		
S	IV.	Provide on-site technical assistance.

We assumed that complete diffusion required that all four steps be implemented and that the sequence be followed as much as possible. In fact, our Precision Teaching adaptation at the demonstration school had followed this model.

The provision of materials, or a Type I diffusion, was a relatively easy step. The Forest Hill project continuously produced materials needed at the demonstration site. After editing and revising, these materials were made available to visitors and to written requests.

Many times during the project, local schools and associations requested speakers at their sites. So, we combined materials and speakers, in a Type II diffusion, to give the clearest possible description of the research adaptation project. Whenever possible, we used students in our demonstrations. Also, at times we included the audience in simulations. Thus, step III of the diffusion model was implemented when our resources and time constraints allowed their inclusion.

During the first year of the project, we had difficulty in completing the fourth diffusion step of providing technical assistance. A diffusion approach called the Consulting Teacher model (McKenzie, 1970) had been included in the Glassboro-Camden proposal. In the Consulting Teacher model, teachers in a graduate program were released during each week for approximately one day in order to take course work for consulting with other teachers on classroom problems. The teacher was replaced with a substitute teacher during this time period. A regular staff of trained permanent substitutes was used so that the classrooms of the "consulting" teachers were not academically harmed.

The Glassboro-Camden proposal had modified the Consulting Teacher program and included it in their 10th Cycle proposal.

> The Glassboro/Camden demonstration project will incorporate both the released time and trained substitute concepts. The released time concept will allow the continuation of the consulting function at minimal costs after the 10th Cycle ends. Furthermore, the consulting will be done by fellow teachers who still have contact with the real classroom situation in the urban setting. An economical, practical, and hopefully successful model will be left functioning at the end of the 10th Cycle.
>
> Released time does involve one major drawback. The classrooms of the consulting teachers may suffer in their absence. Two safeguards will be used in Camden. First, consulting teachers will function in teaching teams during their regular teaching duties. Teams can usually function successfully if a member is absent for a short time. Second, trained substitutes will be used to replace the teachers when they are consulting. The trained substitute idea will not only allow the consulting teachers to leave their classrooms knowing they will still be run effectively, but will help in all classrooms where substitutes are used.

Unfortunately, Teacher Corps was unable to fund this portion of the proposal.

During the same time period (1975-1976) as the first year of the 10th Cycle, the state of New Jersey was attempting to fund a new law, the Public School Education Act of 1975. This act was to provide a "thorough and efficient" system of public schools. During the summer of 1976, the Education Act of 1975 was funded. The act is referred to as the T & E (thorough and efficient) Act. The goal of the T & E Act is "...to provide to all children in New Jersey, regardless of socio-economic status or geographic location, the educational opportunity which will prepare them to function politically, economically, and socially in a democratic society..." (T & E, 1976).

The first important demand of the Act was the December 1, 1976 deadline for New Jersey public school districts to submit "...plans for the development and implementation of activities to accomplish immediate, short term improvement in student achievement to meet local minimum standards in language arts, reading, and math for the 1976-77 school year..." (Interact, 1976).

The second demand is the need for local districts to set proficiency levels in the basic communication and computational skills. Third is the need for the districts to provide professional improvement opportunities for their personnel. The second year of the Glassboro-Camden project (1976-1977) thus coincided with a state-wide mandated need to improve basic computation skills. State monies became available in early 1977 for schools to begin their remediation efforts. Many local school systems found they had an immediate need for help in establishing basic skills programs.

In New Jersey, such help is available from the four state funded EICs (Educational Improvement Centers). The EICs can provide their own resources at minimal cost. They can also act as intermediaries when outside consulting help is needed.

A staff member of one of the EICs contacted the Glassboro-Camden project because we provided a model that was successful in improving the learning of basic skills. Further, our project was an adaptation of a Title IV validated model from Great Falls, Montana. This contact in essence revived most of the original Glassboro-Camden Consulting Teacher model. The EIC had the resources to supply (1) the needed substitutes at the Glassboro-Camden site when teachers were needed for demonstrations, (2) facilities to reproduce and distribute materials, and (3) personnel for on-site technical assistance.

At present, our joint diffusion effort provides a working example of a total package including the four FSU components.

1. Interested educators are introduced to our research adaptation efforts through presentations and/or literature. Presentations focusing on defining and illustrating Precision Teaching measurement, describing our demonstration school management system for Precision Teaching, and giving examples of our sequenced basic computational skill objectives are included in Table 15 and a sample related practice sheet is included in Table 16. It is often the examples of objectives and practice sheets that first interest educators since they are a readily available and practical answer to some of the classroom problems that educators face.

Table 15

Examples of Sequenced Basic Computational Skill Objectives Used During Presentations

A-5	See-Write (random):	Add one digit numbers in the vertical form. example:	$\begin{array}{r}2\\+3\\\hline 5\end{array}$
	A-5-a:	Add + 0's. example:	$\begin{array}{r}1\\+0\\\hline 1\end{array}$
	A-5-b:	Add + 1's. example:	$\begin{array}{r}3\\+1\\\hline 4\end{array}$
	A-5-c:	Add + 2's. example:	$\begin{array}{r}3\\+2\\\hline 5\end{array}$
	A-5-d:	Add + 3's. example	$\begin{array}{r}5\\+3\\\hline 8\end{array}$
	A-5-e:	Add + 4's. example:	$\begin{array}{r}0\\+4\\\hline 4\end{array}$

Table 16
A Sample Sheet Used During Participation

A-B Arithmetic Practice Sheet

STUDENT____________ TEACHER____________ DATE____

Corrects (per minute):___ Improves (per minute):__ Aim_____

2)18	2)10	2)6	2)14	2)0	2)2	2)8	2)4	2)12
2)16	2)0	2)8	2)14	2)18	2)2	2)6	2)12	2)4
2)14	2)4	2)6	2)12	2)0	2)16	2)8	2)10	2)18
2)10	2)6	2)4	2)16	2)8	2)14	2)18	2)2	2)0
2)18	2)14	2)4	2)2	2)12	2)6	2)8	2)4	2)10
2)10	2)6	2)14	2)4	2)18	2)0	2)12	2)6	2)2
2)16	2)14	2)12	2)10	2)8	2)6	2)4	2)0	2)2

II. Demonstrations are given involving Forest Hill teachers and students. Usually Forest Hill School is the demonstration site although at times a limited number of teachers and students travel to other sites. Usually, though, interested educators still find it necessary to visit the Forest Hill school even after these small scale demonstrations. Visitors at the demonstration site are almost universally impressed with the Precision Teaching process. (In fact, they are too easily impressed since the long developmental process is not evident to them.) Skeptical individuals tend to be those from schools with different age groups — junior and senior highs. Most visitors state their intention of adapting Precision Teaching during their visits but few follow up in their classrooms.

III. Audiences are included in simulations of the demonstration school's Precision Teaching techniques. Participants receive practice sheets and they then take a one minute timed practice. Sheets are self-corrected and raw scores calculated. Their performance rates are then compared with data from the demonstration school and with established proficiency levels. Finally, scores from the audiences are used to simulate Precision Teaching charting. Unfortunately, simulations cannot provide the audience with the needed background and experience to fully understand or appreciate Precision Teaching.

IV. On-site technical assistance is provided by personnel from the Central Educational Improvement Center of New Jersey. A staff member has received preliminary training in Precision Teaching and can provide on-site help as well as valuable coordination efforts between schools. She can also arrange for visits to the Camden demonstration site and for technical assistance from the Teacher Corps staff. Once a satellite site is established, it may, and does, request services from each diffusion level, depending on immediate need. To date, the empirical results of our diffusion efforts are unknown since full scale application at satellite sites is just beginning. A list of satellite sites is included in Table 17.

Table 17

Satellite Sites Where Planned Diffusion Efforts Are Ongoing

Keyport High School
Broad Street
Keyport, NJ 07735

Atlantic Elementary School
Route 537
Colts Neck, NJ 07722

Tinton Falls School
674Tinton Avenue
Tinton Falls, NJ 07724

Swimming River School
220 Hance Avenue
Tinton Falls, NJ 07724

Roosevelt School
Roosevelt, NJ 08555

Without the fortuitous passing of the T&E Act and without the resources of EIC, our ability to diffuse Precision Teaching in any meaningful way would have been seriously compromised. Therefore, we feel that without specific funding to support and evaluate diffusion efforts, little in the way of successful diffusion can be done by projects such as Teacher Corps.

Also, attention must be given to helping satellite schools maintain their research adaptation progams after the initial diffusion is made. Further, the original demonstration school should receive support so that its successful program can be continued. Below are some suggestions which we feel would offer encouragement to these individuals. These efforts might be supported locally, regionally, or federally. We feel that Teacher Corps can offer leadership and guidance in the following areas of concern:

1. Teacher incentives in terms of college credits and/or pay increases.
2. On-site technical assistance.
3. Readily available materials and supplies.
4. Periodic data analysis by outside evaluators.
5. Group meetings to discuss adaptation results and to exchange ideas.

In this position paper, Sather argues that "external validity" is the test of whether Demonstration projects are successful. National curriculum projects of the 1960's were accused of operating on the assumption that if it worked in the pilot test site, it would work anywhere. Illustrations from law enforcement and education are used to show the desirability of evaluation which takes into account external validity when conducting federally funded demonstrations. It is unlikely that under current conditions and levels of funding projects can meet all the criteria for external validity suggested. However, the limitations which result from not doing so should be recognized by diffusers.

A PERSPECTIVE ON SUCCESSFUL DIFFUSION

by
Gregory A. Sather
Evaluator/Administrative Assistant
Teacher Corps Research Adaptation Cluster

Demonstration as a Federal Mandate

Taxpayers and the Congress are increasingly demanding that federally funded agencies and projects successfully carry out their intended missions or objectives. Congress has mandated for Teacher Corps:

> Collectively, Teacher Corps Projects should represent a coherent effort to demonstrate to all local educational agencies and communities the potential for training and retraining approaches. (Federal Register, November 22, 1976).

Congress, however, did not provide specific criteria with which to judge the adequacy of an attempt to "represent a coherent effort to demonstrate." Further specification was left to Teacher Corps itself, the Office of Education and others in the Department of Health, Education and Welfare. Within Teacher Corps, as in other federal agencies, the process of interpreting Congressional intent has been essentially the establishment of criteria by which proposed projects are to be judged as to their acceptability for funding.

Proposed Teacher Corps Projects, if they are to be funded, must successfully address 13 criteria developed by Teacher Corps staff. Those projects which chose training for the systematic adaptation of research findings (Research Adaptation Cluster), were provided the following summary and rationale for this particular strategy:

> There is presently available and in immediately usable form, a substantial body of results from research concerning learning and

> educational items and the retraining of experienced teachers and teacher aides. This research can be drawn upon to identify training objectives, select approaches to training and evaluation, create instructional materials and activities or adapt existing materials to new situations, and organize training or retraining programs. This research evidence represents a vast potential resource which, as yet, has not been organized into systematic or overall program demonstrations. (Teacher Corps, 1975)

Although projects are selected for implementation using this rationale and the 13 criteria, they do not provide any definition or conceptualization of demonstration. The primary point of view of this article is that the question of project or component success must first be addressed before an adequate conceptualization of demonstration can be detailed.[1] The underlying basis for this premise is that the question of generalizability, reproducibility, or replicability, or, as Campbell and Stanley define it, "external validity," is the critical issue a DEMONSTRATION Project must address if it is to demonstrate, i.e., teach or impact others.

Successful diffusion, in the context of this paper, means that successful programmatic outcomes are obtained when the program is repeated in different locales and/or at different times. Hence, DEMONSTRATION projects need to be developed and executed using sound evaluation methods and appropriate, rigorous, statistical analyses. Recognizing that education, and particularly federally-funded educational programs and educational research and development, takes place within a political arena, there is a need to shift priorities from offering "solutions" to the position that there are tractable problems which need to be addressed and can be addressed through carefully assessed reform effort. Campbell (1975) puts it this way:

> One simple shift in political posture which would reduce the problem is the shift from advocacy of a specific reform to the advocacy of the seriousness of the problem, and hence to the advocacy of persistence in alternative reform efforts should the first one fail. The political stance would become: 'This is a serious problem. We propose to initiate Policy A on an experimental basis. If, after five years, there has been no significant improvement, we shall shift to Policy B.'

Campbell argues that it is reasonable to demand that DEMONSTRATION projects need to address themselves to the external validity of their programs before they "demonstrate."

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[1] It is not the intention of the author to argue against many of the valuable suggestions about DEMONSTRATION and the other concepts, i.e., development, documentation, dissemination, and diffusion, presented in this monograph. Indeed, many of these suggestions are worthy of emulation. However, without a strong methodological perspective from which to examine these concepts, there is the risk of blindly emulating concepts in totally unwarranted situations. It is this author's desire that this article serves to begin an examination attitude. Suppose one makes the following statement: If robbery was a legitimate form of employment, then bank robbers should be allowed to rob banks to support themselves. If, however, the morning newspapers reported that I claimed, "bank robbers should be allowed to rob banks to support themselves," I have clearly been misinterpreted. This analogously represents my fear that DEMONSTRATION, if not embedded in a strong evaluative research setting, will similarly be misinterpreted. Certainly this fear is not without grounds as many lay persons and professional educators have been expressing dismay over the seemingly faddism inherent in education and particularly within the educational R&D community.

External Validity as a Standard for Success in Demonstration Projects

There are some strong philosophical and methodological reasons supporting external validity as an appropriate standard for gauging success in any demonstration or research and development project.[2] In this section federal intent will be examined in two distinct areas to assess the degree to which replicability captures or corresponds to federal intent. The first one examined is the criminal justice system, i.e., the Predictive Sentencing Project sponsored by the Center for Studies of Crime and Delinquency, National Institute of Mental Health, DHEW, and the Law Enforcement Assistance Administration (LEAA), Department of Justice. The second area is education, i.e., National Institute of Education and Teacher Corps, both under DHEW.[3]

The Predictive Sentencing Project[4] was a study of 16-18 year old male habitual traffic offenders. It attempted to match types of offenders with types of sentencing assumed to be optimal for reducing the probability of repeated offenses. Convicted traffic offenders were randomly assigned into one of five probationary treatments; one treatment was a control group where offenders were tested, fined the typical $20 fine, and released. After approximately two years and 200 treated probationers, prediction equations (multiple regression equations) were constructed where probationers' characteristics were used maximally to account for (predict) the variance in outcome, i.e., recidivism or the lack thereof. To the delight of project personnel the innovative treatments, particularly reality therapy counseling, showed considerable improvement in reducing recidivism over the control group. Unlike too many social intervention programs, the project, however, did not stop there. Instead, the project continued with the cross validation of sentencing equations;[5] the offenders were actually sentenced into treatments based on the predictive sentencing equations. Moreover, the project was also expanded into four diverse geographical areas to test the validity, reliability and replicability of the initial outcomes with different samples. While the outcomes of this phase were not as simple as hoped, it was, nevertheless, possible to clarify under what conditions such a sentencing scheme could be successfully implemented. This accomplishment was only possible because of the generous funding, the long duration of the project (approximately seven years), and the utilization of rigorous methodological standards which included explicit tests of the external validity of the predictive sentencing scheme, i.e., the planned extension of the project to other locales with other offenders across a fairly lengthy time span (Nagy and Fisher, 1977).

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[2] Some of the methodological issues concerning external validity are briefly examined in the next section of this paper. It is interesting to note, however, an ever increasing concern about the methodological issues of external validity appearing throughout a wide range of the evaluation literature. Four particular pieces of literature stand out as exemplifying this concern (Riecken and Boruch, 1975. Cooley and Lohnes, 1976, Glass, 1976, and Struening and Guttentag, 1976). This paper is written from a research perspective which encompasses the philosophical bias of the scientific method. This bias argues that hypotheses or theories are never fully proved; rather, through continual replication, theories are shown to be either false or not false. It is only after a theory has passed the test of time (replication is confidence in the theory enhanced and eventually accepted. Admittedly, this is an idealized conceptualization of the scientific method but it does not underscore the importance of external validity as a standard for testing the acceptability of an hypothesis. Likewise, I contend the same notion applies to social interpretation programs.

[3] While at first glance, this comparison between criminology and education may appear somewhat capricious, it is, however, surprising the level of similarity in the problems plagueing both fields. in particular, both LEAA and NIE have come under attack for their lack of accountability and their lack of demonstrable impact on practice within their respective fields.

[4] The description and results of the Predictive Sentencing Project have been published in two forms. The first *Final Report on the Predictive Sentencing of 16-18 Year Old Male Habitual Traffic Offenders* (Whinery, et al., July, 1976) is a highly detailed, technical three volume report. It can be obtained from the Department of Continuing Legal Education, University of Oklahoma Law Center, Norman, Oklahoma, 73019. The second is a recently published book by D. C. Heath (Winery, Nagy, Sather and Fisher, 1976) which is less technical than the final report and it also explores some of the legal, social, economic and methodological ramifications of that project.

[5] For an excellent discussion of multiple regression and cross-validation see *Validation Studies* (Tatsuoka, 1970).

The ability of the Predictive Sentencing Project actually to suggest conditons which promote or impede success within the criminal justice field was an all too rare event. Much of the work within this field has shown dismal results, and for policy-makers has generally served to confuse, rather than clarify, possible solutions to the problems addressed (Caplan, 1976). It was within this atmosphere and also at a time when the "war on crime" was a politically strong issue the Law Enforcement Assistance Administration came into being. Instead of becoming a leading force in reducing crime or increasing justice or efficiency the LEAA has been plagued with inability to show success or adequately identify factors which contribute to success or failure. In 1974, former Attorney General William Saxbe noted that after six years of distributing federal funds, more than three billion dollars, the agency had only begun to set up a comprehensive system to measure its effectiveness.* How has Congress responded to this situation and what does the Congress wish to happen? Holtzman's bill, succinctly summarizes the Congressional demand for external validity. It would require that:

1) LEAA identify and circulate lists of projects which have proved successful so that these projects can be **repeated** (emphasis added);
2) Beginning in the fiscal year 1979 ... each state spend at least 25% of its block funds on programs that have already proved to be effective (Holtzman, 1976 a, b).

Thus, Congress is demanding that its funds be spent on projects which accomplish what they are purported to do; and further, these projects give assurance that their results are not due to spurious circumstances but are, in fact, transportable to (externally valid) other locales. Does this intent also hold true for education?

The House Committee on Education and Labor issued a report by Chase (1972) summarizing the state of affairs in educational research and development. In that report Chase wrote:

> Deficiencies in national planning, management, support, and evaluation are a continuing impediment to realization of the full potential of educational R and D. These shortcomings spring largely from the failure to place educational R and D in charge of an adequately funded agency at a level in the government hierarchy comparable to the National Science Foundation or the National Institute of Health.

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*While LEAA has been under increasing attack, the agency has provided some innovative and useful services, particularly its National Criminal Justice Reference Service.

In response to these complaints the National Institute of Education was established by the Educational Amendments Act of 1972. The Institute was charged with:

1) Helping to solve or to alleviate the problems of, and promote the reform and renewal of, American education;
2) Advancing the practice of education, as an act, science, and profession;
3) Strengthening the scientific and technological foundations of education; and
4) Building an effective educational research and development system (NIE, 1973).

These priorities indicate that NIE was intended to promote educational research and development that impacted American education across varied areas, persons, and situations. Thus NIE was not construed as simply a funding agency to sponsor specific education research and development projects; but rather, it was to address those problems which were national and multifaceted in scope. This intent has been more explicitly stated in the recently released, **Catalog of NIE Education Products** (NIE, 1975). This catalog is evidence of the desire of the federal government and NIE to promote those programs, products, and activities capable of being successfully utilized by a variety of persons and institutions. The introduction to the catalog states:

> The primary purposes of the Catalog are twofold: (1) To inform educational practioners, developers, policymakers, and publishers about a wide range of school-oriented products developed with Federal R & D funds; (2) to provide information to help potential consumers make decisions concerning the most appropriate education products for their needs.

As was the case of the LEAA, the NIE has been charged with developing successful and useful products and processes. Moreover, this assessment of success in large measure is based on the extent to which these products and processes are replicable, i.e., capable of getting the same results in different situations.

METHODOLOGICAL ISSUES OF EXTERNAL VALIDITY

The literature contains many excellent discussions of the methodological issues surrounding external validity; this section will be brief and cursory.[7] However, there are some elementary, but fundamental, issues that need to be reviewed. In any research and development project there are a number of common pitfalls that must be avoided. Perhaps the most notable and most frequent pitfall encountered in research and development projects

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[7] Henkel (1976) presents an excellent introductory analysis of the tests of significance and the assumptions that underlies them. He is, however, extremely pessimistic about their use in social action and educational innovative projects because these programs seldom meet the assumption of the tests. Further, he claims that these tests have too often been used as tests of substance rather than statistical tests which they are. Campbell (1975) too is wary of the use f these tests in such projects. Heis, however, more optimistic and suggests that they can have limited usefulness when they are used cautiously and conservatively. My bias is that if more multivariate tests are used, researchers stand a better chance of avoiding the errors Henkel indicated.

(DEMONSTRATIONS) is the misinterpretation of statistical significance. Too many researchers and too many journal editors mistakenly infer that if an intervention or project produces results that are statistically significant, then if the intervention or project is replicated, or repeated, the same statistically significant result will occur. This, however, is simply not the case. As Campbell (1970) pointed out, tests of significance measure only one part of the validity of an intervention or project, the internal validity, i.e., whether the intervention produced results that were significantly different from those expected from chance alone. If an intervention or a project fails to show statistically significant results, (lack of internal validity), the question of external validity is moot.[8] On the other hand, where statistical significance is obtained care must be taken in assessing the degree to which other factors not accounted for in the statistical test, i.e., (competing hypotheses) or threats to external validity, contributed to the obtained results.

Some threats to external validity occur when a project fails to assign pupils or units of analysis on a random basis or fails to use control groups for comparison with interventions. These threats to external validity can be grouped into five types: **selection, measurement, treatment, situation and differential mortality** (Bernstein, Bohrnstead and Borgatta, 1976). **Selection** effects arise when units of analysis are not selected randomly. When this occurs the ability to generalize one's findings from a sample to the larger population is minimized since any intervention effects may be due to the selection rather than the intervention. **Measurement** devices pose threats to external validity when they are unreliable and invalid or when they are reactive or obtrusive (Webb, Campbell, Schwartz, and Secrest, 1966). If measurement effects are at work, then a researcher is not sure that intervention effects are anything more than error due to the unreliability and invalidity of the measure or the observed effects might be a peculiar interaction between the measures and the units being measured. **Treatment** effects may jeopardize the validity of a project by confounding the targeted intervention with other interventions or by the imprecise, and unaccounted for, delivery of the targeted intervention. This type of threat is particularly relevant to Teacher Corps projects since many demonstration sites (LEAs) have several federal or state programs operating simultaneously. Further, without adequate management and formative evaluation systems it is difficult to accurately assess the extent to which the targeted intervention was actually delivered. **Situation** threats to validity are typically those due to the uniqueness or newness of the project. The earliest awareness of this type of threat was the Hawthorne effect observed in 1939. Essentially, it occurs when the persons being studied are either to please or displease the researcher so that the persons either increase or decrease their efforts (Madge, 1962). If this phenomenon occurs one has difficulty in explaining the observed effects. Other typical situational effects are the experiment's bias

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[8] There is an obvious caveat to this statement. If an intervention produces substantial effects but statistically small effects, one may mistakenly accept the null hypothesis (Type II error) because the statistical test was not powerful enough to detect the effect. The resolution of this problem is essentially an assessment of the relevant cost/benefits of committing a Type I or a Type II error. However, this assessment is far from easy and certainly represents a challenging problem for statisticians.

(Rosenthal, 1969), novelty, history, and setting. Hyman and Wright (1967) have referred to these effects as the ecology of the project. They wrote:

> In the attempt to conceptualize a program, the evaluator may be led astray by the very term itself. He may think of the treatment and forget the context in which it is imbedded. ... the staff and the program are contained within a site, and the ecology of sites often contributes to the effectiveness of programs and should be conceptualized by an evaluator.

Teacher Corps projects are also particularly threatened by these situational threats to external validity given their relatively short time span, and by the dedication and "faith" of Teacher Corps personnel.[*] Differential mortality typically refers to the phenomenon where particular groups of subjects have higher drop out rates than other groups. Often control groups have higher drop out rates if they have little incentive to remain with a project or study. When this phenomenon is present one must be cautious about explaining and generalizing observed effects since the "drop-outs" may all have similar characteristics, thus the observed effects are lacking a necessary component to permit generalizing to the larger population.

This brief review of threats to external validity was neither exhaustive nor mutually exclusive. Natural events can provide all sorts of threats or alternative explanations of observed effects. However, it must be remembered that many threats to external validity can be ruled out by a careful, rational analysis of a particular situation. For example, if a project has no drop-outs then differential mortality cannot be an alternative explanation of the observed effects. Moreover, the more strongly a project is tied to sound theoretical principles the easier it is to rule out alternative explanations of observed results and thus enhance the external validity of a project (Platt, 1968). Besides clarity of thought, Dingman (1969) offered three rules that should be followed in assessing the external validity of a project. These three "Canons of Reproducability" are:

I) Rather than generalize from random data, a proportion of the sample gathered for the study should be reserved for cross-validation purposes.

II) The results of similar experiments or multivariate procedures on different samples of experimental subjects must give equivalent results.

III) The results of an experiment or multivariate study must be validated by procedures or methods that are different from the methods or procedures that produced the original results.

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[*] The advent of five year funding for Teacher Corps projects in the 13th Cycle offers some unique possibilities for minimizing these situational threats to external validity. As an example, a particular innovative strategy could be carried out across a number of varied locales and with varied personnel. Then, if equivalent results are obtained stronger evidence about the credibility of the innovation should be had. Obviously, this would call for more centralized control by Washington and this would certainly raise some strong political problems. Nevertheless, this kind of planning could prove to be effective and certainly careful thought should be given to such possibilities.

Further, he went on and stated:

> Recognition of these three canons... would serve to refocus attention away from the artifact of 'statistical significance' as a major principal in the value system of scientists... (and) give way to systematic attempts to encompass the 'errors' and 'heterogeneities in the sample' into a better understanding of the experimental (project) and of the theory being tested.

These principles will probably not be fully realized in any project. However, they should be given time, planning, energy, and funding, if they are to be realized at all. This is no small task, but when done well the benefits can far outweigh the costs incurred. The ability of the Predictive Sentencing Project to offer explanations in a field where clarity was lacking was due, in large measure, to the careful attention given to these 'canons of reproducability.' Not only were the results cross-validated on portions of the sample, there were also samples selected from different times and locales and the methods for assessing the results ranged from chi-square to analysis of variance, multiple regression, factor analysis, discrimant and multivariate analysis. It took no small amount of time, money, and effort.

A PERSPECTIVE OF DEMONSTRATION

So what? This review of the federal mandate for DEMONSTRATION has argued that there are not clear criteria for how a DEMONSTRATION is to be judged. Because of this lack of standards, and also, because many of the case studies in this monograph have offered useful suggestions as to the what and how of DEMONSTRATION, it seems necessary also to ask why. This examination of the why concludes that mandated DEMONSTRATION implies two notions. One, elements of the DEMONSTRATION have to be shown as successful; that is, they did what they purported to do. Second, DEMONSTRATION has to have wider applicability and be transportable. This was the case in two fields, criminal justice and education. Finally, an examination of the meaning of external validity shows, first, that this notion corresponds to federal intent, and second, an analysis of some of the common pitfalls in assessing external validity provides some 'canons' that can be useful in maximizing the external validity of a project.

From this examination there are some inferences to be drawn about DEMONSTRATION, and development, documentation, dissemination and diffusion. Development cannot be simply a matter of starting a project; it also needs to incorporate the conceptualization of the project, what motivates the particular project and what has to be done to assure maximum external validity. Likewise documentation can be seen not simply as a detailed accounting of what occurred during the project but as an effort to provide other interested persons the project's conceptualization, procedures, products, and data collected. Dingman (1969) has some further advice:

> The availability of data files for reanalysis by other investigators is a vital issue. The full disclosure of experimental procedures is as important as making tests and stimulus materials available to one's colleagues.

Essentially then dissemination efforts are simply means of getting the word out. Diffusion and Demonstration efforts must go much further. Certainly the time, effort and complexity of these efforts will vary according to one's motives, audience, and resources. But, if these efforts are carried out naively, without regard to the real world need for external valididty, then these efforts will only reinforce taxpayers' and Congress' distrust of the educational community. Without regard for the external validity of an element to be demonstrated, particularly when it reaches the diffusion phase it may be analogous to the slick car salesman who sells his product with a "demonstration ride" but neglects to mention that the "demonstrator" is retuned and overhauled every twelve hours. The unfortunate buyer, twelve hours later, discovers the neglected piece of information about the product. The stringency of meeting this standard of external validity is costly and time consuming, but important educational demonstrations such as those sponsored by Teacher Corps are worth the cost and the time.

CONCLUSION

The articles and case studies in this book have made a number of points about problems, processes, and perspectives of demonstration projects. Rather than to summarize these, our conclusions will consist of picking up some threads that have run through the collection and taking a look at the future.

New Players

One common concern that has been expressed in research adaptation and demonstration projects is the need for new kinds of actors in the expanding drama. These projects interact with district administrators, teacher organizations, state departments, universities, schools, community organizations, and many others. The functions to be performed include research design, instructional design, intervention strategies, statistical analysis, documentation, evaluation, diplomacy, governance, management, and occasional walking on eggs, nails, or hot coals.

New Timing

Contemplation of the number and variety of functions or roles in these projects leads to the inevitable conclusion that demonstration is a complicated business. A corollary to this conclusion is that demonstration is a long term process. Five year projects are more likely to complete the process than are two year projects. Another corollary is that a project has a greater probability of generating demonstrable components than it has of producing an entire operation which is exportable.

New Concepts of Success

Furthermore, consideration of the complicated and time consuming nature of demonstration should keep project members humble; a successful intervention does not offer a panacea to educators, it provides workable options to potential users. Parts of a project which did not work need not be thought of as failures if they are documented and interpreted to help someone else avoid similar mistakes.

In the same light, parts that did work should not be thought of as successes until they have been documented and described in a way which helps others see why they worked, how they worked, and how they can be used by others.

Another key concept which is explicit in our collection of writings and experiences is that an operation which moves from pretest or assessment of needs through development, intervention, and post-test is not enough. If the project is to be regarded as a successful demonstration, it must include dissemination and diffusion activities.

Dissemination and diffusion need to be carried out with the consumer in mind. This means that the other D's (description, development, and documentation) have to be conducted with an eye on the ultimate audience, i.e., the potential user of the ideas in a different setting.

Diverse Settings

The examples which have been given draw on the experiences of projects in a wide variety of environments: Harlem, Appalachia, urban, suburban, rural, east, west, north, south, and central. The local cultures and traditions affect what can be done, even with validated materials and procedures. A carefully planned demonstration includes these considerations in its own intervention design and in its dissemination and diffusion activities.

Despite the diversity of settings reported, certain common experiences have been evident in the 15 research adaptation projects. Every project has had to implement its demonstration in one or more target schools, this has required establishing a level of trust and mutual respect among university and school personnel. Stereotyped thinking about the roles of professors and teachers has impeded progress in a number of projects. Ingrained notions about the nature of inservice education for teachers have undergone drastic changes in most of the projects.

Overlapping Concepts

The need to document systematically and describe clearly is evident throughout the collection of articles and examples. Other aspects of the five D's also overlap the sections of the book. For example, all the steps of development used to implement an innovation must be repeated when the diffusing strategy is designed, tested, and carried out.

A different sort of overlap became evident to the editors as the book took shape. We set out to assemble a "How to Do It" guidebook for personnel who are charged with a federal mandate to conduct demonstration projects. We realized that to teach others how to do something would require a diffusion similar to the types described in that section of our book, whereas the book was really an example of a dissemination effort.

Safety in Numbers

One might ask why we didn't simply present a single case study of a demonstration project from its conception to its successful replication in other sites. It is unlikely that a single project has addressed all the issues raised by the synthesis of 15 projects. Hence, the book attempts to describe "what might be" as Teacher Corps moves to more emphasis on demonstration.

One of the strengths of Teacher Corps is its ability to draw from many sources. In this case, we have drawn from 15 projects — some in their first year of operation, others in their second — all of whom have a common thrust, to demonstrate the adaptation of research findings to the training and retraining of teachers, interns, and aides who work with children from low income families.

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